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ADDRESS.

ADDRESS OF CHAIRMAN.

Delivered before the Section on the Practice of Medicine, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY SAMUEL A. FISK, M.D.
DENVER, COLO.

It affords me peculiar pleasure to extend to you a welcome to Denver and Colorado. Having come to Colorado myself, some eighteen years ago, severely afflicted with acute pulmonary tuberculosis, which was thought to be of a fatal nature, my professional life has been almost entirely in Denver, and I have looked upon this meeting of the AMERICAN MEDICAL ASSOCIATION as one of the best ways of informing the profession of this country of what the climate of Colorado is and what it can accomplish, and so of repaying, to a slight degree, some of my obligations to this State, and of making thousands of others sharers with me in the benefits that climate can offer. I am fully aware that the Colorado climate is not always uniform; that frequently, like a pretty girl, she pouts; and that too, at times when one would like to have her at her best. But taking her for all in all, the climate is unsurpassed, and favorable results, so far as pulmonary disease is concerned, can be seen on every hand, and recoveries are to be numbered by the tens of thousands, which is the best proof of the efficacy of the Colorado climate in such disease.

The welfare of the AMERICAN MEDICAL ASSOCIATION especially demands our attention. Starting as she does on a fresh half-century of work, we who are interested in her well-being have every reason to look for a greatly enlarged field of usefulness and of influence. The good of the ASSOCIATION as a whole is closely allied with the good of each individual Section; and in connection with the work that has devolved upon me during the past year, with reference to the Section on the Practice of Medicine, a few things have suggested themselves which I wish to call to your attention.

I have found that the time of meeting conflicts with the work of many of the profession engaged in medical education, their final examinations and graduations coming at this time. To me, this is a matter of serious consideration, as in the present instance it has robbbed us of the presence of a number of men prominent in medicine, and whose assistance is certainly to be desired. If the ASSOCIATION is to be a National one, and not confined to the narrow limits of the East, it seems to me that this subject will need adaptation. To me, it is to be deplored that the old discussion on the ethics deprives us of the assistance of still another set of men, whose co-operation would be valuable. As some effort is now being made to bridge over the old rupture, I wish to express the hope that we may, ere long, reclaim those who left on this score, and I wish to urge that, on our part, we do not require too great exactions. Still another party stands aloof from a feeling of disgust at what they call the "politics" of the ASSOCIATION. It may be that they place too great stress upon this one point, yet it does seem to me as though we should make every effort to have our ASSOCIATION known as a scientific rather than a political body.

The man practicing medicine exclusively, is frequently hampered by the professional brother on the one hand, who demands that he shall put the hand into the side and have a demonstration to his senses; and, on the other, of the laboratory man, who demands that the clinical results shall tally with those of mechanical appliances. As was ably pointed out by Prof. F. C. Shattuck in his official address before a State society a year or so ago, "Internal Medicine" should use these different results, rather than be used by them. Even now, having been thoroughly scared, she is again resuming courage and great things are to be hoped for in the future. It may be that she, herself, is somewhat to blame for these conditions and that many a fault has been allowed to be covered up by a theory rather than a fact. "The peculiar type of disease," it seems to me, is often used as a cloak for one's short-comings, or where this fails, one is wont to take refuge behind the theory of "self-limitations," which led the first Dr. Warren many years ago, when asked what was good for acute rheumatism, to reply, "six weeks." Fortunately for us, text-books do not contain the whole of medicine and disease does not necessarily direct her course according to the tactics of a treatise on practice. We recognize nowadays, that if our joints are swollen and painful with acute articular rheumatism, we do not have to wait the whole six weeks, and we know that the old idea of "twenty-one days" as applied to typhoid fever does not hold, and that we have the peculiar types of disease known as *typhus levissimus*, afebrile and an abortive typhoid. The fact that we do have these peculiar types, whether it be the result of practice or in spite of practice, leads us to hope that disease of any sort which has once been aborted can be aborted a second time, and that after a while the *peculiar* type may become the *prevailing* type. It seems to me, that in the direction of abortive as well as of preventive medicine, our Section has a considerable scope for the future.

I wish to remind you that this is the centennial anniversary of Jenner's famous discovery, that persons accidentally inoculated with cowpox were subsequently insusceptible to smallpox. It is needless for me to do more than make mention of this fact and to recall the blessings which have accrued to the world from its introduction, how that one of the greatest blights to mankind, one that frequently decimated a population, has been blotted out and that the average limit of man's days has been increased in consequence.

It may not be amiss to mention the fact that these are the results of the purest clinical observation and not those of laboratory toil. I do not wish, gentlemen, to depreciate the results of experimentation and of exactness, so-called, but I do chafe under what at times, looks like absurd demand and unjust restriction. One is frequently reminded of Hamlet's fine frenzy: "Why, look you now, how unworthy a thing you make of me. You would play upon me; you would seem to know my stops; . . . .'s blood! do you think that I am easier to be played on than a fife?"

Gentlemen, I will not detain you further. An attractive program awaits us, and in its consideration I know that we shall derive pleasure and profit, and I trust that in succeeding years the Section on the Practice of Medicine may look back to its Denver meeting as productive of good and as a disseminator of knowledge; one accompanied as well with much pleasure.

ORIGINAL ARTICLES.

THE MODERN TREATMENT OF GUNSHOT WOUNDS IN MILITARY PRACTICE.

BY N. SENN, M.D.

LIEUTENANT-COLONEL U. S. VOLUNTEERS, CHIEF OPERATING SURGEON WITH THE ARMY IN THE FIELD.

Two important causes are destined to bring about a radical change in the treatment of gunshot wounds as practiced in the war of the rebellion and as will be taught and advised in the Spanish-American and future wars: 1, the modifications which the weapon and projectile have undergone since that time; 2, the introduction into general practice of aseptic and antiseptic surgery. The diminution in the caliber of the bullet, the metallic jacket, the substitution of smokeless for black powder, the greater velocity and power of penetration of the missile, are conditions and influences which must necessarily modify the character of wounds inflicted with the modern weapon. Volumes have been written on this subject by writers in all countries in which the old weapon has been abandoned and the new one introduced. Numerous experiments have been made on cadavers and animals for the purpose of studying the effects of the modern projectile on the tissues with a view of obtaining reliable information as to the changes which will become necessary in the rational treatment of gunshot wounds in modern warfare. Experimental investigation has done much in pointing out some of the changes we may expect to see in the character of gunshot wounds during the present and coming wars, but many of the conclusions drawn from them will have to be modified after we have had an opportunity to study such wounds on a large scale on the battlefield. There can be no question but that the living body and the cadaver represent two entirely different mediums in studying the effects of the modern bullet. From a practical standpoint there remains no doubt as to the following facts, which will be confirmed by future experience in the treatment of gunshot injuries inflicted with the small caliber bullet: 1. Few bullets will be found lodged in the body. 2. Wounds will resemble more closely incised than contused wounds. 3. Range will have more influence in changing the character of the wound. 4. Diminished risk of infection. 5. Dangerous primary hemorrhage will be more, secondary hemorrhage less frequent. 6. More difficult extraction of the bullet. As to the relative number of dead and wounded and the adaptation of the jacketed bullet to become encysted, are subjects on which we can only theorize and conjecture, subjects which can only be definitely settled by an extensive experience. We are better prepared to predict the influence wrought by the recent discoveries and advancements in surgery on the treatment of gunshot wounds and the fate of the wounded. The antiseptic treatment of wounds as taught and practiced by the immortal Lister, and asepsis as developed by the German surgeons with the distinguished Volkmann as their leader, are destined to minimize the remote dangers of gunshot wounds and other open injuries inflicted on the battlefield. We can safely repeat with the late Professor von Nussbaum, the most enthusiastic follower of Lister: "*The fate of the wounded rests in the hands of the one who applies the first dressing.*" This is the motto that every military surgeon must adopt and carry into effect. To this motto I should like to add a cast-iron rule that should never be transgressed and which, if observed without exception, will guard against one of the most fruitful sources of infection, and that rule should be: *Never probe a bullet wound on the battlefield.* The experience of the past has taught us the wisdom of adopting such a universal rule. As our enemy is armed with the Mauser rifle, the cases will be few where there is any indication for probing wounds, and in those few where the bullet has lodged in the body, exploration should be absolutely prohibited until the patient reaches the field hospital where the facilities for asepsis are at hand and instruments of precision in diagnosis can be employed in locating the missile.

FIRST AID DRESSING.

The idea of rendering first aid to the wounded immediately upon receipt of injury in modern warfare must be abandoned. Alarming hemorrhage from a large vessel of any of the extremities will in many instances be arrested by the patient himself or his nearest comrade by the use of some sort of circular constriction, but the legitimate function of the hospital corps men will begin after the engagement. Desirable as it may appear, attempts at disinfection of the wound or wounds will prove impracticable and useless on the battlefield. Time alone is an important element in contraindicating such a course. Hundreds and thousands may demand attention, to say nothing of the limited facilities for procuring for the wound and its vicinity an aseptic condition. The wisest and safest course to pursue under such circumstances is to make an intelligent use of the first aid dressing package which should be found upon the person of every soldier, officers and men. The average first aid package, the one devised by von Esmarch included, is too cumbersome. A first aid package, to meet the indications for which it is employed, should include: 1, an efficient antiseptic powder; 2, a sufficient quantity of a hygroscopic material to absorb the primary wound secretions and serve as a filter for the wound; 3, a handkerchief or bandage with which to retain the dressing and in case of necessity to be used in constructing a Spanish windlass; 4, safety pins. A few years ago I devised such a package. It contains about a teaspoonful of a powder composed of four parts of boracic acid, one part of salicylic acid, about one drachm of absorbent cotton, a piece of sterile gauze forty inches square and a number of safety

pins. The powder is lodged in the center of the cotton compress and is to be applied directly to the wound when the package is used. The package when compressed is small and wrapped in gutta percha. Every soldier of the Illinois volunteers carries such a package and is conversant with the manner in which it should be employed. The piece of gauze can be readily transformed into a Mayer triangular bandage and serves as an excellent substitute for Esmarch's bandage, which is heavier and requires much more space. The figures printed on Esmarch's bandage are useful for instruction but absolutely without value on the battlefield. In rendering first aid the injured part should be divested of clothing with as little disturbance of the wound as possible. Instead of removing the clothing it is much better to make free use of scissors and knife in gaining access to the wound. If two wounds are found, both must receive the same attention and care in protecting them against infection. I have used the antiseptic powder which I have referred to on a very large scale and can speak in positive terms of its potent antiseptic properties. It resembles in its effects on the tissues Thiersch's solution, being odorless, non-irritating and non-toxic. It forms with the cotton and primary wound secretions a crust which effectually seals the wound. In the absence of grave symptoms such as hemorrhage, this dressing should not be disturbed until the patient reaches the field hospital, and in many cases healing of the wound will take place without further interference. The immobilization of the injured part, particularly in cases of compound fracture of the extremities, constitutes an important part of the manifest duties of those who render first aid to the wounded. In all large engagements the supply of mechanical supports carried by the men of the hospital corps will be exhausted long before all of the wounded have received attention. Splints must be improvised. Rifles, sabers, bayonets, bark, branches of trees, shrubs, etc., the chest in fractures of the upper extremity, the opposite limb in fractures of the thigh or leg, will have to be utilized in procuring rest for the injured limb in transporting patients from the line of battle to the first dressing station. It is here that the surgeons will supplement or improve the work done by the litter bearers and hospital corps. It is for the purpose of doing away with the necessity of using splints that a German military surgeon has recently devised a litter on the plan of a double inclined plane for the lower extremities, a description of which he gave before the military section of the International Medical Congress held in Moscow last summer. In the absence of a litter of such special construction the same object is attained by securing the same position for the injured limb by a roll made of a blanket, clothing, knapsack, drum, straw, etc. It is my opinion that the transportation of the wounded suffering from a fracture of the lower extremity can be done with less pain and with greater security against additional injuries if the fractured limb is placed in a flexed than a straight position. If this statement is found to be correct by future observations the manner of dressing such cases must undergo a material change in the future. The manner of handling, carrying and conveying patients from the field to the hospital, suffering from fracture of the lower extremity, is a subject of great importance to those who have in charge the instruction of the hospital corps and company bearers.

ARREST OF HEMORRHAGE ON THE FIELD.

Life will be placed in jeopardy and deaths will occur more frequently from internal than external hemorrhage; in the treatment of the former little can be done in the field, and the latter class will come more frequently under the care of more professional men than surgeons. Ligation of arteries in the field will prove impracticable in most instances. The company bearers and hospital corps men should be fully instructed in the details of the various hemostatic resources applicable in emergency work. Elevation of the injured part, hyperflexion, digital compression and antiseptic tamponade are some of the measures employed which can be entrusted to intelligent and well instructed laymen in arresting hemorrhage. Some form of circular constriction will, however, most frequently be relied upon in arresting hemorrhage complicating gunshot wounds of the extremities. The advantages and dangers attending this method of arresting hemorrhage must be made a prominent feature in giving instructions on first aid. The technique of the procedure, whether it consists in the use of the typical Esmarch's elastic constrictor, a pair of suspenders or the Spanish windlass, must be fully explained and demonstrated on the living subject. The fact must be impressed that it is of great importance to render the limb that is to be constricted comparatively bloodless by elevation before the constrictor is applied. The next most important advice to be carried into effect in the use of circular constriction is to *constrict quickly and with sufficient firmness to interrupt at once and completely both the arterial and venous circulation.* A question of immense and far reaching importance, and one which has not as yet been definitely answered is: How long is it safe to continue the constriction? There must be, and there is, a limit as to length of time it is safe to exclude blood supply from living tissues. Although cases have been reported in which elastic constriction was continued for three to twelve hours without any serious immediate or remote consequences following, yet the consensus of opinion among surgeons, I am sure, at the present time would be opposed to excluding the blood supply from an entire limb, the seat of a gunshot injury, for a longer time than three to four hours. The danger of gangrene is always greater in constricting an injured than a healthy limb. A number of years ago I made an extended series of experiments on dogs to determine if possible, the maximum length of time it would be safe to continue elastic constriction. The limb was invariably constricted near its base. The time varied from an hour and a half to twenty-seven hours. In a number of cases temporary incompetence of the muscles and temporary paralysis followed when constriction was continued beyond four hours, but the degree of functional disturbance was not always proportionate to the length of time. In only one instance did gangrene occur, and in this case constriction was continued for seventeen hours, while the maximum time was twenty-seven hours. This subject is of special interest to the military surgeon, as from the very nature of things if circular constriction is resorted to as a hemostatic agent on the battlefield a considerable length of time must necessarily intervene before the wounded reach the first dressing station or field hospital, where it is removed and hemorrhage arrested by direct and permanent hemostatic measures. I should consider it dangerous to extend the time beyond from three to six hours, and should

insist that within this limit of time the patient should be placed in charge of a surgeon fully equipped to substitute for it the ligature, aseptic tamponade or some other direct hemostatic agent.

LOCATING, FINDING AND EXTRACTING BULLETS.

The new weapon will minimize the surgeon's work in locating, finding and removing bullets. In the vast majority of cases requiring surgical treatment two wounds will be found, the wound of entrance and exit marking the location and direction of the tubular wound made by the bullet. The cases in which the jacketed bullet will be found in the body indicated by the existence of only one wound will be exceptional. During my visit to the military hospitals in Greece last summer I found a good many wounds made by the small caliber projectile, but only in two cases could I obtain authentic information to the effect that the bullet was found in the tissues of the body and was removed by operative procedure. In the military hospitals in Turkey I found numerous cases in which the old-fashioned large caliber lead bullet used by the Greeks have been removed by operation or remained lodged in the body. The search for bullets in modern warfare, if made at all, will be reserved until the patient has reached the field hospital, when the surgeons will have at their disposal the necessary instrument for making an accurate diagnosis, and the essential facilities for making operations under the strictest aseptic and antiseptic precautions. Before using the finger or probe in exploration for a bullet the wound and the surface for a considerable distance around it should be thoroughly disinfected to guard against all possibility of infecting the wound during the examination or attempts at removal of the bullet, should such a course be deemed advisable after the completion of the examination. One of the most important rules to be followed in locating a bullet in the body is to place the patient and the part injured as nearly as possible in the same position as when occupied the moment the injury was received. The truth of this statement was well exemplified in the case of Gen. Hancock. A number of surgeons of good repute had made repeated attempts to find the bullet by probing but failed. At last he availed himself of the services of Dr. Reade, the present Surgeon-General of Pennsylvania, who placed the General in the same position he occupied in the saddle, and the first attempt to locate the bullet proved successful. The metal clad bullet has to a certain extent rendered the famous Nélaton probe obsolete. However, leaden bullets will be used to a greater or less extent by certain branches of the military force, and the porcelain tip will occasionally prove of service. The great objection to Nélaton's bullet probe is the size of the porcelain tip. *The end of the probe should correspond approximately in size to the caliber of the tubular wound.* By using an instrument constructed on this principle the danger of making false passages is greatly reduced. I have had a bullet probe constructed by Truax, Greene & Co., with two porcelain tips, one at each end rivited to the end of the silver probe, one 22 and the other 38 caliber. In parts of the body composed of deep muscular planes and layers of fascia it is often found absolutely impossible to follow the track of the bullet with any kind of probe. It is in such cases, when it is deemed prudent, from the symptoms presented and the probable location of the bullet, to explore the track that the surgeon will take advantage of the use of the knife in dilating the track, using the probe step for step as a guide. The use of the X-ray will prove of the greatest value in all future attempts to locate bullets. In order to locate the bullet with sufficient accuracy to enable the surgeon to determine the propriety of an operation for its removal, and to guide him safely in his work photographs from at least two directions will have to be taken. Every field and general hospital should be supplied with an X-ray apparatus, and in all difficult cases this, one of the most recent diagnostic inventions, should be made use of before undertaking an operation, and in preference to repeated recourse to the probe. The famous old-fashioned American bullet forceps has lost its distinction in military surgery by the introduction of the metal clad bullet. The bullet forceps which I show you I devised a few years ago. It is so constructed that it serves at the same time as a useful bullet probe. The grip of the instrument upon any metallic bullet regardless of its caliber is firm, the bullet once grasped can be extracted without difficulty, as slipping of the instrument is almost an impossibility. It seems to me that when a small caliber bullet lodged in an important anatomic locality, difficult of approach and not giving rise to any serious symptoms, it should be allowed to remain with the hope that it may become encysted without causing any remote serious consequences. Such a conservative course in well selected cases will unquestionably yield better results than the too common routine practice to extract the bullet at all hazards.

GUNSHOT WOUNDS OF THE EXTREMITIES.

Besides the ordinary treatment of gunshot wounds regardless of the anatomic location of the injury, bullet wounds of the extremities, where complicated by fracture or joint injury, present to the surgeon special clinical features of great importance. Injuries of soft tissues not implicating important vessels and nerves, under modern treatment, should heal in a short time under the first dressing with little or no functional impairment. The existence of a gunshot fracture regardless of the extent of bone injury no longer furnishes a legitimate indication for a primary amputation. Such injuries under appropriate aseptic and mechanical treatment are amenable to a satisfactory repair in the course of time. They are the cases that tax the ingenuity of the surgeon in applying and maintaining the necessary mechanical support until the fracture heals by bony consolidation with the limb in a satisfactory useful position. In gunshot fractures of the femur extension and immobilization will now, as it has for a long time, constitute the generally accepted treatment. A determined, strong protest must be made against the unnecessary removal of detached and partially detached fragments of bone. If the wound remains aseptic the loose fragments of bone will not only retain their vitality but will take an important part in the restoration of the continuity of the bone and add materially to the functional result. Débridement, more or less extensive, only becomes necessary and should be performed in case the wound becomes infected. In such an event the loose infected fragments of bone should be promptly removed, free tubular drainage established, and the wound throughout subjected to thorough disinfection. If the ordinary measures should fail, continued irrigation with a saturated solution of acetate of aluminium will very often bring about the desired

results and obviate the necessity of an amputation. Fixation and suspension in such cases will not only procure comfort for the patient but will answer an excellent purpose in securing and maintaining coaptations and in facilitating drainage and irrigation. As soon as the fracture has united with sufficient firmness to render extension superfluous, the limb should be immobilized in a circular plaster of Paris splint, extending from base of toes to the groin, and in high fractures including the pelvis, after which the patient can be permitted to walk about with the aid of crutches. In gunshot fractures of the leg early immobilization in a circular plastic splint is to be advised and yields the most gratifying results. Watchful control of patients suffering from such injuries and treated by the use of the plaster of Paris bandage is essential in guarding against disastrous complications and in obtaining satisfactory functional results. Gunshot injuries of any of the large joints are now within the range of successful conservative treatment. I have seen in the military hospitals, both in Greece and Turkey, soon after the close of the war, gunshot wounds of the hip, knee, ankle, shoulder, elbow and wrist joints, not only recover without any operative interference whatever, but in many of the cases a fair degree of motion and good use of the limb rewarded the conservative treatment. The indications for primary amputation of a limb, or part of a limb, should at present be restricted to cases in which the nutrition is suspended or seriously threatened by the coexistence of vascular lesions incompatible with the vitality of the tissues at and below the seat of injury. In cases of doubt the soldier is entitled to the benefit of the same, and the conservative treatment should be carried to its ultimate limits until the appearance of complications demonstrate its futility and dictate the propriety of resorting to a mutilating operation. It is always more creditable to the surgeon to save a limb than to remove it, and the soldier is entitled to the benefit of conservative surgery as much as the civilian, and the plan of the military surgeon of the future should and will be to limit more and more the indications for amputations.

GUNSHOT WOUNDS OF THE SKULL.

It is my intention to limit my remarks under this heading to penetrating gunshot wounds of the skull. The few cases of this class of injuries that will come under the observation of the military surgeon will invariably require operative interference, provided it holds out any encouragement whatever of saving life. In case a bullet has passed through the skull and its contents the entire scalp should be thoroughly shaved and disinfected. The wound of entrance must be enlarged sufficiently to expose the perforation freely, which is then enlarged with chisel, DeVilbiss or rongeur forceps sufficiently to enable the surgeon to remove the loose spicula of bone, which are frequently found some distance in the brain. With a long eyed probe a strip of iodoform gauze large enough to loosely pack the tubular visceral wound should be inserted from the wound of entrance to the wound of exit, and the rough gauze drain made to project a few inches beyond the surface of each wound. Thorough capillary drainage of this kind will prevent accumulation of primary wound secretion in the interior of the skull, and will be of value in arresting capillary hemorrhage. A large hygroscopic dressing enveloping the entire scalp and covering both wounds, constitutes the dressing and must be held in place by a few turns of plaster of Paris bandage. The drain must be allowed to remain until the danger of infection is passed, when it is to be removed gradually by shortening it every day or two. In case the bullet should be found lodged in the interior of the skull the wound of entrance must be treated in the same manner and the bullet located by the careful use of Flubrer's aluminium probe. A counter opening may become necessary in removing the bullet if it has reached the opposite side of the skull or when it has become deflected or arrested in its course near the surface of the brain, in case the locality in which it has become lodged warrants operative intervention. In all visceral injuries of the contents of the skull resulting from gunshot wounds capillary or tubular drainage or a combination of the two is indicated and should be continued until there is no further danger of infection, hemorrhage or accumulation of wound products, when the drain is to be gradually removed. The value of the X-ray in locating bullets in the interior of the cranium has as yet not been definitely ascertained.

GUNSHOT WOUNDS OF THE CHEST.

Penetrating gunshot wounds of the chest are attended by an enormous mortality owing to the physiologic importance of the organs which it contains. Visceral wounds of the heart and large blood vessels usually result in death in a few moments from acute anemia. Hemorrhage into the pleural cavity and into the large bronchial tubes interferes mechanically with the respiratory functions and frequently proves fatal in a short time and if the patient recovers from its immediate effects life is placed in danger by complications which so often are caused by the hemothorax. The accumulation of such a large quantity of blood in the pleural cavity is not incompatible with a speedy recovery, as when the blood is aseptic its removal by absorption is accomplished in a short time.

Experience during the War of the Rebellion proved that in gunshot wounds of the chest the chances for life were much better if the bullet passed through the chest than if it remained lodged in the body. I saw a number of soldiers of the Graeco-Turkish war that had been shot through the chest convalescent and in fair health a few weeks after the injury was inflicted. We have made little progress in the treatment of penetrating wounds of the chest. Direct operative treatment of visceral wounds of the heart and lungs is always attended by imminent risk to life from pulmonary collapse. This source of danger stands in the way of direct treatment of visceral wounds of the chest. Hemorrhage from wounds of the lung is often corrected spontaneously by the accumulation of blood in the cavity of the chest, causing temporary pulmonary collapse and tamponade of the tubular visceral wound by the formation of a blood clot. Free incision of the chest wall has been strongly advocated by several French surgeons in cases of penetrating gunshot wounds of the chest with a view of arresting hemorrhage by ligature, tamponade or the use of the cautery, but the profession on the whole, for good reasons, is opposed to such heroic treatment. Unless the source of hemorrhage is one of the intercostal or the internal mammary artery it is advisable to rely on nature's resources in arresting the bleeding. Hemorrhage from the intercostal arteries can be effectually checked by tamponade, using for this

purpose an hour glass shaped tampon of iodoform gauze. Rest in the recumbent position, with the chest slightly elevated, is essential in aiding spontaneous arrest of hemorrhage and in the prevention of complications. A rise in the temperature during the first forty-eight hours is no indication of the existence of sepsis, as with few exceptions it indicates a febrile disturbance, caused by the absorption of fibrin ferment, the so-called fermentation fever. Should later symptoms set in suggestive of septic infection, aspiration should be promptly resorted to and if not followed by speedy improvement no time should be lost in subjecting the patient to the same medical treatment as advised and practiced for empyema, that is, rib resection, free incision and drainage. The production of an artificial pneumothorax or hydrothorax by the introduction into the pleural cavity on the injured side of a non-toxic gas or filtered atmospheric air or sterilized water or non-toxic antiseptic solutions has not proved satisfactory in the treatment of intrathoracic traumatic hemorrhage. From what has been said it is clear that the best treatment in penetrating gunshot wounds of the chest consists in hermetically sealing the wound of entrance and exit, if such exists, under strict aseptic precautions and watch for and treat subsequent complications as they present themselves.

GUNSHOT WOUNDS OF THE ABDOMEN.

The greater part of this paper will be devoted to this subject, as recent discoveries and improvements in surgery have done more for the successful treatment of visceral wounds of the abdominal organs than the injuries of any of the organs contained in the remaining large cavities of the body. The triumphs that have signaled the practice of civilian surgeons in the operative treatment of intra-abdominal injuries must be repeated on the battlefield. I look hopefully for many successful results in the operative treatment of gunshot wounds in military practice. I will in this connection limit my remarks to penetrating wounds, taking it for granted that when patients suffering from adbominal wounds are brought to the field hospitals the surgeons in charge will consider it their imperative duty to make a positive distinction between penetrating and non-penetrating wounds before assuming the responsibility of opening the abdomen. In the discussion of penetrating wounds of the abdomen I shall quote freely from the forthcoming third edition of the American Textbook of Surgery from the chapter which treats of this subject. Sword, bayonet and other stab wounds will diminish in frequency with the development of modern scientific warfare. The penetrating wounds of the abdomen that will come under the observation of the military surgeon will with few exceptions be wounds inflicted with the modern small caliber projectile. The visceral wounds, the wound of entrance and exit will be small, too small for digital exploration. It is perhaps superfluous to make the statement here that *a penetrating wound of the abdomen should never be probed either for diagnostic or therapeutic purposes.* If any doubt exists as to whether or not the bullet has entered the abdominal cavity it is far better and safer to dilate the track by the use of the knife, relying on the probe as a guide, than to work in the dark with the probe and by doing so increasing the possibilities of infecting the peritoneal cavity. Quite recently the assertion has been made by several prominent surgeons that laparotomy should be performed in all cases where it can be shown that penetration has occurred. It must, however, be admitted that, in the absence of serious visceral lesions, penetrating wounds of the abdomen are injuries from which the patients are very likely to recover without operative treatment, and that when such patients are subjected to laparotomy death may occur solely in consequence of the operation. It is undoubtedly true that in most cases of spontaneous recovery after penetrating gunshot wound of the abdomen the favorable termination has been due to the absence of serious visceral lesions, which some hold to be invariably present in such cases. A number of years ago I made a series of experiments on the cadaver for the purpose of demonstrating that occasionally a bullet can traverse the abdominal cavity in certain directions without producing a visceral wound that would warrant a laparotomy. The cadaver, a marasmic adult male was placed in the erect position against a wall and the shooting was done with a 38 caliber rifle at a distance of 30 feet. The bullet was fired in every instance in an antero-posterior direction and invariably passed through the body. Sixteen shots were fired and examination of the abdominal cavity carefully made by following the track of each bullet, showed that four of the bullets traversed the abdominal cavity without injuring the stomach or intestines or any of the large abdominal vessels. In each of these four experiments the bullet entered the abdomen at or a little above the umbilical level. In all experiments in which the bullet entered below the umbilical level intestinal perforations were found. Absence of visceral lesions has been also demonstrated during an operation or at the postmortem. During the Graeco-Turkish war several cases of gunshot wound of the abdomen recovered under a conservative plan of treatment. In nearly all of these cases the bullet entered the abdomen above the umbilicus, the most favorable location for the escape of intestines from the missile, the patient being in a standing position.

In two out of sixteen cases of penetrating gunshot wounds of the abdomen which came under the observation of the writer the absence of visceral injuries of the gastro-intestinal canal was demonstrated by the use of the hydrogen gas-test, and both of these patients recovered without resort to laparotomy. Clinical experience and the result of experiment show conclusively that laparotomy should not be performed simply because a bullet has entered the abdominal cavity, but that its performance should be limited to the treatment of intra-abdominal lesions which, without operative interference, would tend to destroy life. A bullet which passes through the lower part of the abdomen from side to side or obliquely is almost sure to produce from four to fourteen perforations of the intestines, while absence of dangerous visceral complications may be inferred with some degree of probability if it crosses the abdominal cavity in an antero-posterior direction at, or a little above, the umbilical level.

SYMPTOMS.

The general symptoms in cases of penetrating gunshot wounds of the abdomen, with the exception of those due to profuse hemorrhage, furnish very little information in reference to the existence or absence of visceral complications. Severe shock may attend a single non-penetrating wound, and it may be wanting, or at least slight, in cases of multiple perforation

of the intestines. It is not an uncommon occurrence for a patient who has received a penetrating wound of the abdomen to walk several blocks, or even a number of miles, without a great deal of suffering and without showing any symptoms of shock, and yet for a number of intestinal perforations to be revealed at a subsequent operation or autopsy. Vomiting occurs with equal frequency in parietal wounds and in simple penetrating wounds as when the viscera have been injured. Vomiting of blood points to the existence of a wound of the stomach.

Pallor is present in all penetrating wounds of the abdomen, soon after the receipt of the injury, and it is only more pronounced when produced, at least in in part, by sudden and severe hemorrhage. Pain is very unreliable and often misleading symptom, as it may be moderate or almost completely absent soon after the injury has been inflicted, even when multiple perforations are present. The pulse at first is slow and compressible in all cases, and nothing characteristic in its qualities is observed even if the stomach or intestines have been wounded. Hemorrhage caused by wounds of any of the large organs, as the spleen, liver or kidneys, gives rise to progressive acute anemia, small rapid pulse, cold clammy perspiration, dilated pupils, yawning, vomiting, and in extreme cases, syncope and convulsions. The local symptoms are of no more value in determining the existence of visceral injuries in penetrating wounds of the abdomen than are the general symptoms which have just been enumerated. External hemorrhage is slight or entirely wanting, unless an artery or vein in the abdominal wall has been injured. The bleeding from visceral wounds gives rise to accumulations of blood in the peritoneal cavity, occult or internal hemorrhage; this can be recognized by physical signs which denote the presence of fluid in the free abdominal cavity and by general symptoms indicating progressive anemia; increasing pallor of the face and of the visible mucous membranes, small feeble pulse, superficial sighing, respiration and dilated pupils. Wounds of the stomach often occasion hemorrhage into this organ and hematemesis. Blood in the stools seldom follows hemorrhage into the bowels from intestinal wounds sufficiently early to be of any diagnostic value.

Circumscribed emphysema in the tissues around the track made by a bullet has been regarded as an important sign of the existence of intestinal perforation. This symptom is misleading and absolutely devoid of diagnostic value, as this condition has frequently been observed in non-penetrating wounds of the abdominal wall, resulting from the entrance of air into the loose connective tissue, or later by gas formation as one of the results of putrefactive infection. The accumulation of any considerable quantity of gas in the peritoneal cavity sometimes can be recognized by the disappearance of the normal liver dullness, caused by the presence of gas between the surface of the liver and the chest wall. This condition has been sought for in cases of perforating wounds of the abdomen as a diagnostic sign, and if found has been taken as a sure indication of the existence of visceral wounds of the gastro-intestinal canal. This is not, however, always the case. Adhesions between the surface of the liver and chest wall may have existed before the injury was received, or the amount of gas present may be insufficient to give rise to this sign. The escape of the contents of the wounded stomach or intestines through the external wound, is a rare occurrence, and is possible only when the external wound is sufficiently large and straight and when it corresponds with the location of the visceral wound, or in the event of pre-existing adhesions between the abdominal wall and the injured portion of the gastro-intestinal canal. External extravasation occurs more frequently in wounds of the large than the small intestine. When this symptom is present it is conclusive proof of the existence of a visceral wound of the gastro-intestinal canal and the character of the extravasation will furnish reliable information as to the anatomic location of the visceral injury. With the exception of the last mentioned symptom and the indications pointing to the necessity of arresting internal hemorrhage, there is nothing about the local or general symptoms in cases of penetrating gunshot wounds of the abdomen that would enable the surgeon to decide with any degree of certainty soon after the injury was received, whether or not visceral injuries existed and consequently, whether laparotomy should or should not be performed.

DIAGNOSIS.

If a gunshot wound has penetrated the abdominal cavity and the general symptoms and local signs lead us to suspicion the existence of dangerous internal hemorrhage, *no time should be lost in further efforts to make an accurate anatomical diagnosis*, as sufficient evidence has been obtained to warrant a laparotomy for the purpose of preventing death from hemorrhage by the direct surgical treatment of the visceral injuries. If no such urgent indication presents itself it is desirable that the existence of visceral lesions demanding surgical treatment should be ascertained before the patient is subjected to the additional risk incident to a laparotomy, since a simple penetrating wound of the abdomen is an injury from which the majority of patients recover without operative treatment, and since visceral wounds of the gastro-intestinal canal are attended by such frightful mortality without surgical interference, the practical value and importance of a correct diagnosis before deciding upon a definite plan of treatment become obvious. It is apparent that if some reliable diagnostic test could be applied in cases of penetrating wounds of the abdomen which would indicate to the surgeon the presence or absence of visceral lesions of the gastro-intestinal canal, the indications for aggressive or conservative treatment would become clear. The writer has shown by his experiments on animals, and later by his clinical experience in the treatment of a number of cases of gunshot wounds of the abdomen that rectal insufflations of hydrogen gas can be relied upon in demonstrating the existence of perforations of the gastro-intestinal canal before opening the abdomen. He has shown conclusively that if the abdominal muscles are completely relaxed under the influence of a general anesthetic, hydrogen gas or filtered air can under safe pressure be forced from the anus to the mouth if no perforations exist, and if such are present the gas will escape into the peritoneal cavity, where its presence can be readily detected by the physical signs characteristic of a free tympanites or by its escape through the external opening. Theoretical objections have been made against this diagnostic test on the ground that it occasionally fails in demonstrating the existence of a perforation, and that it is instrumental in causing

fecal extravasation. In reply to this I must say that it has never failed in my hands in making by its aid a correct diagnosis, and the fallacy of the second objection I have shown repeatedly by experiments on animals. Hydrogen gas is a non-toxic substance, endowed with valuable inhibitory antiseptic properties, and is absorbed from all the larger serous cavities and connective tissue within a few hours. Pure zinc and sulphuric acid should be used in generating the gas, which is collected in a rubber balloon holding at least four gallons. The rubber balloon used for this purpose is square in shape and is connected with the rectal tip by means of a rubber tube six feet in length and supplied with a stop-cock near its proximal end. In applying the test an assistant presses the margin of the anus against the rectal tip, so as to prevent the escape of the gas, while another assistant forces the gas along the intestinal tube by pressing or sitting on the rubber balloon. The gas passes through the ileocecal valve under a pressure of two and a half pounds to the square inch and is announced by a distinct gurgling sound, which can always be distinctly heard by applying the ear or stethoscope over that region. If the rectum or colon has been perforated the gas will not reach the small intestine, as it will escape into the peritoneal cavity under less pressure than is required in rendering the ileocecal valve incompetent. As soon as the gas reaches a perforation large enough to permit its escape it will enter the peritoneal cavity and escape through the external wound if this has been freely laid open down to the peritoneum. If the external wound is in a location which points to injury of the stomach, this organ should be insufflated through a rubber stomach-tube, and if this test proves negative it is to be followed by rectal insufflation. It is impossible to inflate the intestines to any extent from the stomach.

TREATMENT.

The propriety of surgical interference in cases of penetrating gunshot wounds of the abdomen will depend upon one of three things:

1. General conditions of the patient.
2. Dangerous internal hemorrhage.
3. Wounds of the stomach or intestines large enough to permit extravasation. If the patient is pulseless and presents other indications of approaching death, operation is unjustifiable, as it would only hasten the end and bring reproach upon surgery and undermine the confidence in the life-saving value of the operation among the troops. Dangerous internal hemorrhage that will come to the notice of military surgeons in gunshot wounds of the abdomen will be the cases in which the vascular organs of the abdomen, the liver and spleen, or some of the larger vessels of the mesentery or omentum have been injured. Delay in such cases is dangerous. The abdomen should be opened and the hemorrhage arrested. The symptoms are apt to be unusually severe if the hemorrhage is sudden, progressive, if the loss of blood is gradual. In the latter case it may be prudent to watch the case for some time for more pressing indications, as it is well known that spontaneous arrest of hemorrhage may occur and large quantities of aseptic blood is removed from the peritoneal cavity in a short time. Visceral lesion of the gastro-intestinal canal large enough to permit extravasation are, with very few exceptions, mortal wounds, the existence of which can leave no doubt in the mind of the surgeon to resort promptly to abdominal section as offering the only chance to save life.

PREPARATION OF PATIENT.

A patient suffering from a penetrating gunshot wound of the abdomen should be properly prepared before he is subjected to laparotomy. If the stomach is filled with food, a salt water emetic should be given for the purpose of emptying its contents, or better still, this can be done by the use of the stomach siphon tube. The rectum and colon must be emptied by a copious enema of warm water, to which may be added a tablespoonful of common salt. The unloading of the gastro-intestinal canal will not only facilitate the operation but will have a favorable influence in securing rest for the injured part. A hypodermatic injection of gr. 1/4 of morphin and gr. 1/30 of strychnia should be given shortly before the anesthetic is administered, as these remedies in the doses specified assist the action of the anesthetic, secure rest for the intestines, and sustains the action of the heart. If the patient is much prostrated two ounces of whisky diluted with four ounces of warm water should be given by the rectum. The whole abdomen should be thoroughly disinfected. Before and during the operation the use of external dry heat will do much in preventing shock and in aiding the peripheral circulation. Compresses, towels and several gallons of warm normal solution of salt must be provided. The operator should do the work with as little assistance and as few instruments as possible, as the danger of infection in emergency work is apt to be proportionate with the number of assistants employed and number of instruments used. Hands, instruments, suturing material, in fact everything that is to be brought in contact with the wound, must be sterilized. In military surgery silk will have the preference over catgut. A hospital tent with a floor will be an admirable operating room in all semi-tropical climates. Anesthesia should be commenced with chloroform until the patient is under its full influence, when it should be continued with ether.

INCISION.

In the majority of cases the median incision should be made, as it affords advantages which give it the preference. It should always be selected in cases of gunshot wounds of the stomach, and where the wound of entrance is located near the median line. A median incision affords most ready access in the treatment of wounds of the small intestine. If the insufflation test is used, it will prove sometimes of value in deciding upon the location of the incision. If in gunshot wounds of the upper portion of the abdomen, direct inflation of the stomach through an elastic tube reveals the existence of perforation of this organ, the median incision should be selected. If rectal insufflation yields a positive result before the gas has passed the ileocecal valve, the incision should be made over the wounded portion of the colon, which is usually indicated by the course of the bullet. A wound in the transverse colon can be found and dealt with most effectually through a high median incision, perforation of the cecum or of the ascending colon calls for a lateral incision directly over the wounded organ, while a lateral incision on the left side is indicated if from the direction of the bullet it is evident or probable that the colon below the splenic flexure is the seat of the visceral injury. Laparotomy performed for the arrest of hemorrhage should always be done by mak-

ing a long median incision, which will afford the most direct access to the different sources of hemorrhage. Very often it will be advisable to make the incision in the line of the wound of entrance, more especially in cases where a lateral incision is indicated from the location of the wound from the course of the bullet, and perhaps from the results obtained by the insufflation test.

ARREST OF HEMORRHAGE.

In opening the abdomen in the treatment of internal hemorrhage the surgeon undertakes a task, the gravity of which it is impossible to foretell. To do the work quietly and well he must be perfectly familiar with the anatomy of the abdominal organs, their source of blood supply, and must have full knowledge of all hemostatic resources, the indication for their selection and details of application. Profuse intra-abdominal hemorrhage resulting from penetrating gunshot wounds of the abdomen is more frequently of parenchymatous and venous than arterial origin. Wounds of the liver, spleen, kidneys and mesentery give rise to profuse and often fatal hemorrhage. After opening the peritoneal cavity it is often very difficult to find the bleeding points, as the blood accumulates as rapidly as it is sponged out, and it becomes necessary to resort to special means in order to arrest profuse bleeding sufficiently to find the source of hemorrhage. One of two means should be employed: 1, intra-abdominal digital compression of the aorta; 2, packing the abdominal cavity with a number of large sponges or gauze compresses. Intra-abdominal compression of the aorta below the diaphragm can be readily made by an assistant introducing his hand through the abdominal incision, which in such a case must be larger than under ordinary circumstances. Compression made in this manner will promptly arrest the hemorrhage from any of the abdominal organs for a sufficient length of time to enable the surgeon to find the source of hemorrhage, and carry out the necessary treatment for its permanent arrest.

Hemorrhage from a perforated kidney may demand a nephrectomy, if it does not yield to tamponade. If the tampon is used an incision in the lumbar region must be made for the removal of the tampon and the parietal peritoneum should be sutured, so as to exclude the peritoneal cavity from the renal wounds. Wounds of the liver are sutured with catgut, cauterized with the actual cautery, or tamponaded with a long strip of iodoform or a typical Mikulicz tampon; in either case the gauze is to be brought out of the wound and utilized as a drain.

A wound of the spleen, if the hemorrhage does not yield to ligature, suturing or tamponade, necessitates splenectomy; very troublesome hemorrhage is often met with in wounds of the mesentery. When multiple wounds of the mesentery, and visceral wounds of the stomach or intestines are the cause of hemorrhage, it is a good plan to pack the abdominal cavity with a number of large sponges, napkins or compresses of gauze, to each of which a long strip of gauze is securely tied, these strips being allowed to hang out of the wound in order that none of the sponges or compresses may be lost or forgotten in the abdominal cavity after the completion of the operation. The sponges or compresses make sufficient pressure to arrest parenchymatous oozing as well as venous hemorrhage, if they are placed at different points against the mesentery and between the intestinal coils. The sponges are removed one by one from below upward, and the bleeding points secured as fast as they are uncovered. The ligation of mesenteric and omental vessels, both arteries and veins, should be done by applying the ligature *en masse*. A round needle or Thornton's curved hemostatic forceps are the most useful instruments for this purpose. Catgut, as a rule, should not be relied upon in tying a mesenteric vessel, as it is greatly inferior to fine silk.

If hemorrhage is profuse this must be attended to before anything is done in the way of binding and suturing the visceral wounds. Troublesome hemorrhage from a large visceral wound of the stomach or intestines is best controlled by hemming the margin of the wound with catgut or fine silk. In hemorrhage from localities not accessible to ligation and not amenable to tamponade, pressure forceps are applied and allowed to remain for twenty-four or forty-eight hours. When used in this manner the instrument must be long enough to be brought out of the wound, and is then incorporated in the dressing. For the purpose of facilitating the binding and removal of the instrument a strip of gauze is tied to the handle.

SEARCH FOR PERFORATIONS.

A number of cases have been recorded, and I am sure many more have occurred, in which laparotomy was performed, one or more perforations sutured, and the postmortem showed that a perforation was overlooked, death resulting from extravasation and diffuse septic peritonitis. Such experiences are by no means limited to the practice of novitiates, but have occurred to men of large experience and in well equipped first class hospitals. The handling of the entire length of the gastro-intestinal canal in search for perforations requires time, adds to the shock of the injury and operation, and even if done by experts and with the utmost care, a perforation may escape the attention of the operator and become the sole cause of death. If the surgeon adopts this plan of detecting the perforations the work should be done systematically. The ileocecal region is the best landmark in beginning the search. From here the small intestine is traced in an upward direction, examining loop after loop and returning the intestine as soon as examined so as to avoid extensive eventration, which adds greatly to the danger of the operation The large intestine is traced from the ileocecal region downward. In one of my cases a perforation of the rectum was found low down in the pelvis and certainly would have been overlooked if I had not used the inflation test, which promptly revealed not only its existence but also its exact location. If the air or gas test has been employed with a positive result before the abdomen was opened there will be no difficulty experienced in finding the first opening. If the stomach was inflated directly through an elastic tube, and the test has shown the presence of a perforation, a median incision is made from the tip of the ensiform cartilage to the umbilicus and the stomach is drawn forward into the the wound. If no perforation is found in the anterior wall, the insufflation is repeated, and the escaping air or gas will direct the surgeon to the perforation. Through this perforation the stomach should again be inflated in search for a second and possibly a third perforation. In searching for intestinal wounds by the aid of inflation, further inflation should be suspended as soon as the lowest perforation has been found. If possible, the perforated portion of the

intestine should now be brought forward into the wound, and after emptying the intestine below the perforation as far as possible of its contents, including the gas or air, the bowel is compressed below the perforation by an assistant and the intestine higher up is inflated through the wound. As a matter of course, a perfectly aseptic glass tube should be inserted into the rubber tube in place of the rectal tip. The inflation is now carried as far as the second opening, when the first perforation is sutured, and after disinfection and emptying the intervening portion of its gas the intestine is replaced in the abdominal cavity. Further inflation is now made through the second opening, and if a third one is found the second is sutured, and so on until the entire intestinal canal has been thoroughly subjected to the test. By following this plan extensive eventration is rendered superfluous and the overlooking of a perforation is made impossible, likewise the objection to the test that reduction of the intestines owing to distension with gas or air is overcome if the intervening sections between the perforations are emptied of their contents before suturing the wound.

SUTURING THE PERFORATIONS.

The materials for suturing are an ordinary sewing needle and fine aseptic silk. Catgut should be dispensed with in all intestinal work. Trimming the margins of the visceral wounds is not only superfluous, but absolutely harmful, as it requires a useless expenditure of time and may become an additional source of hemorrhage. The same can be said of the Czerny-Lembert suture. All that is required in the treatment of a visceral wound of the stomach and intestines is to turn the margins of the wound inward and bring into apposition healthy serous surfaces by the continuous or by interrupted sero-muscular sutures, which should always be made to include fibers of Halsted's submucosa. From four to six stitches to an inch will suffice. If possible, wounds of the stomach should be sutured in the direction of the blood vessels, and transverse suturing of the intestine is necessary for the purpose of preventing constriction of the lumen. Defects an inch and a half in length, on the convex side, can be closed in this manner without fear of causing intestinal obstruction, while much smaller defects on the mesenteric side usually necessitate a resection, not only because the vascular supply in the corresponding portion of the intestine would be inadequate, but also because a sufficiently sharp flexion might be produced at the seat of suturing to become the immediate mechanical cause of intestinal obstruction.

ENTERECTOMY.

Enterectomy is often indicated in cases of double perforation and in marginal wounds of the mesenteric border. If in cases of multiple perforations it should become necessary to make a double enterectomy, and the intervening portion of the small intestine is not more than two or three feet in length, it is best to resect the same, as the immediate effect of the single operation will be less severe than that of a double resection with a corresponding double enterorrhaphy. After resection the continuity of the intestinal canal should always be restored by a circular enterorrhaphy, using for this purpose the Czerny-Lembert suture. Strips of sterile gauze are preferable to clamps in preventing extravasation during the operation. The gauze strip is passed through a small buttonhole made with hemostatic forceps in the mesentery near the intestine and tied with sufficient firmness to prevent escape of intestinal contents.

IRRIGATION OF THE ABDOMINAL CAVITY.

This is necessary only if fecal extravasation or escape of stomach contents has taken place, an accident which, if it has not occurred before the abdomen was opened, should be carefully avoided during the manipulation of the wounded intestines. Flushing the peritoneal cavity with warm sterilized water or normal salt solution not only clears it of infectious material, but acts at the same time as a stimulant to the flagging circulation. The current must be sufficiently strong not only to fill the peritoneal cavity quickly, but to *flush it out.*

After completion of the irrigation, the patient is placed on his side and in this position the fluid contents of the abdominal cavity are poured out. The cavity is then rapidly dried with large sponges wrung out of a weak sublimate solution (1 to 10,000) or Thiersch's solution. Some surgeons have practically abandoned flushing of the abdominal cavity, and rely almost exclusively on sponging in removing pus and extravasated fecal material; others are partial to leaving the physiologic solutions of salt in the cavity, paying no attention to the peritoneal toilette practiced with conscientious care by all surgeons only a few years ago.

DRAINAGE.

To drain or not to drain, is the all absorbing topic among surgeons whose time and attention are largely engaged in abdominal work. I wish to place myself on record as being a strong advocate of drainage in all cases of abdominal surgery in which we have reason to believe that contamination of the peritoneal cavity has taken place by extravasation of contents of the gastro-intestinal canal or pus. In gunshot wounds of the abdomen complicated by visceral injury, the probability that infection has occurred must not be lost sight of, and the only safe course to pursue under such circumstances is to drain when you are in doubt. Cases which require irrigation should always be drained. Other indications for drainage are visceral wounds of the liver and pancreas and the existence of parenchymatous hemorrhage which can not be remedied by any of the different hemostatic measures. A glass drain reaching to the bottom of the pelvis, loosely packed with a strip of iodoform gauze, answers an excellent purpose. Occasionally multiple drains are indicated. The Mikulicz drain is to be depended upon in arresting troublesome surface oozing. Drainage must be suspended at once, or gradually, with the cessation of the primary wound secretion.

SUTURING OF EXTERNAL INCISION.

Incisions through the median line are rapidly closed by one row of silk or silkworm gut sutures, which are placed close together and include all the tissues of the margins of the wound. Incisions made in any other place are to be closed by buried catgut sutures uniting the peritoneum and muscular layer separately, and a superficial row of silkworm gut sutures including all the tissues except the peritoneum. A large hygroscopic compress composed of sterile gauze and absorbent cotton, held in place by broad strips of adhesive plaster, constitutes the proper dressing. The sutures are removed at the end of the second week, and the patient must not be allowed to leave the bed before the expiration of the fourth week. Four weeks in

bed and the wearing of a well fitting abdominal support for three to six months are the most reliable precautions against the occurrence of a post-operative ventral hernia. The drainage opening should be closed with secondary sutures, inserted at the time of operation as soon as the drain is closed, otherwise a ventral hernia will be almost sure to develop in the scar at former site of the drainage tube.

AFTER-TREATMENT.

Absolute rest must be strictly enforced. Opiates must be given in doses sufficient to quiet the peristaltic action of the intestines. Stimulants must be used to counteract the effect of shock and to restore the vigor of the enfeebled peripheral circulation. Absolute diet must be observed for at least forty-eight hours. During this time a mixture of brandy and ice water, in small doses frequently repeated, or iced champagne, is agreeable to the patient, as it quenches thirst, relieves nausea and exerts a favorable influence upon the circulation. If more active stimulation is called for to overcome shock and the effects of hemorrhage, whisky, strychnia, ether, musk, or camphor can be injected subcutaneously or by the rectum, while the peripheral circulation is restored by applying dry heat to the extremities and trunk. The subcutaneous infusion of one to two pints of normal salt solution is an excellent restorative and of special therapeutic efficiency in cases where the vital forces are depressed and life is in danger from the effects of hemorrhage.

Should symptoms of peritonitis set in, a brisk saline cathartic should be given at the end of forty-eight hours, as at this time the intestinal wounds will have become sufficiently united to resist the peristalsis provoked by the cathartic, while the removal of intestinal contents and the absorption of septic material from the peritoneal cavity thus attained are not only the most efficient means of averting a fatal disease, but also of placing the wounds in the most favorable condition for rapid repair. Reopening of the wound and secondary flushing have done little in arresting or limiting septic peritonitis. If the case progresses favorably, liquid food by the stomach can be allowed at the end of the second day, and light solid food at the end of the first week. Under ordinary circumstances no effort is made to move the bowels until the end of the third or fourth day. If early feeding becomes necessary in marasmic or exsanguine patients, this can be done by rectal alimentation.

From the contents of the paper the following conclusions can be formulated:

1. In theory and practice military surgery is equivalent in every respect to emergency practice in civil life.

2. The wounded soldier is entitled to the same degree of immunity against infection as persons in civil life suffering from similar injuries.

3. The fate of the wounded rests in the hands of the one who applies the first dressing.

4. The first dressing should be as simple as possible, including an antiseptic powder composed of boracic acid, four parts, salicylic acid, one part, a small compress of cotton, safety pins and a piece of gauze forty inches square.

5. Any attempt to disinfect a wound on the battlefield is impracticable.

6. The first dressing stations and the field hospitals are the legitimate places where the work of the hospital corps and company bearers is to be revised and supplemented. All formal operations must be performed in the field hospitals where the wounded can receive the full benefits of aseptic and antiseptic precautions.

7. Probing for bullets on the battlefield must be absolutely prohibited.

8. Elastic constriction for the arrest of hemorrhage must not be continued for more than four to six hours for fear of causing gangrene.

9. The X-ray will prove a more valuable diagnostic resource than the probe in locating bullets lodged in the body.

10. Gunshot wounds of the extremities must be treated upon the most conservative plan, the indications for primary amputation being limited to cases in which injury of the soft parts, vessels and nerves suspend or seriously threaten the nutrition of the limb below the seat of injury.

11. Operative interference is indicated in all penetrating gunshot wounds of the skull.

12. Gunshot wounds of the chest should be treated by hermetically sealing the wounds under the strictest aseptic precautions.

13. Laparotomy in penetrating gunshot wounds of the abdomen is indicated in all cases where life is threatened by hemorrhage of visceral wounds and the general condition of the patient is such as to sustain the expectation that he will survive the immediate effects of the operation.

DISCUSSION ON PERFORATION PERITONITIS.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

By J. C. Wilson, Philadelphia; W. W. Keen, Philadelphia; J. H. Musser, Philadelphia; C. G. Stockton, Buffalo; L. F. Bishop, New York; H. A. Hare, Philadelphia; Frank Billings, Chicago; H. M. McConnell, Pennsylvania; H. J. Herrick, Cleveland, and J. W. Cokenower, Des Moines.

J. C. Wilson of Philadelphia—The resources of modern surgery have greatly simplified the work of the medical clinician. Forms of visceral disease that long baffled the art of medicine now yield promptly to surgical treatment. In the general category of pathologic conditions thus transferred from medicine to surgery many are primary, many secondary to infectious or other processes. The greater number of them do not tend to spontaneous recovery, so that a pure expectancy is without avail, while that modified expectancy which consists in the administration of drugs for the relief of symptoms is futile as to cure. In point of fact symptomatic treatment, while it allays suffering, very often darkens council by deferring accurate diagnosis and too long postponing surgical intervention.

In the list of visceral diseases not yielding to medical treatment and sooner or later to be transferred to the care of the surgeon are the following: Empyema, which is to be treated by free drainage and in necessary cases by resection of the ribs; pericardial effusions, which if purulent, require free incision and drainage; large single abscesses of the liver; troublesome cases of cholelithiasis with persistent symptoms and empyema of the gall bladder, which Richardson of Boston has recently shown to be relatively com-

mon and amenable to surgical treatment; cysts of the pancreas; echinococcus cysts. As concerns the kidney, extirpation of the organ may be performed when it is the seat of malignant or other growths; nephrorraphy for the relief of symptoms due to displacement; hydronephrosis and nephrolithiasis may require operation; and as certain cases of stubborn nephralgia permanent relief results from incision of the capsule. In recent times the field of the surgery of the gastro-intestinal tract has been greatly extended. The establishment of gastric fistulæ in stenosis of the esophagus for purposes of alimentation; pylorectomy, the partial or total extirpation of the stomach; gastro-enterostomy and other devices by which mechanical obstructions have been relieved and life prolonged are practiced with success. The same is true with regard to operations for the relief of obstructive diseases of the intestines. Among the most brilliant and perhaps beneficent feats of surgery are the operations recently devised for the removal of the carcinomatous disease of the lower bowel. The surgical treatment of diseases of the appendix has led to a complete revision of the views held in regard to the diseases in this region and the establishment of principles which mark a new era in abdominal surgery. Scarcely less brilliant and radical, if not equally successful, is the recent surgical treatment of ulcerative lesions of the stomach and intestines, especially peptic ulcer and the perforating ulcer of enteric fever. Nor can I close this list without referring to the brilliant achievements of Macewen, Horsley, Keen and others in the management of intracranial tumor and abscess and to the operations for the destruction of the ganglion of Gasser for the relief of otherwise intractable neuritis of the trifacial, and to nerve-stretching and the excision of nerves in other forms of stubborn neuralgia, and to Quincke's spinal puncture, which, though thus far barren of results as regards treatment, has proved of the greatest value in diagnosis.

These fruitful encroachments of surgery into fields long almost barrenly occupied by internal medicine constitute great permanent advances in the art of healing. In fact one may challenge contradiction in saying that the greatest achievements of modern surgery are not so much in the improvement upon old methods as in the acquisition of new regions of usefulness. They bring the surgeon and the clinician into closer contact, into more useful co-operation. It is often said that the improvement in surgical technique has exerted a detrimental influence upon surgical diagnosis. If this be true a compensation has taken place, for the improvement in surgical technique has vastly increased the responsibilities of the medical clinician as regards prompt and accurate diagnosis. If the surgeon becomes more skilful and successful in new fields of operation, the physician must keep pace, nay, run ahead of him in promptness and skill in diagnosis, for it is under the latter's care that the greatest number of visceral diseases to be benefited by operation first come. In many conditions resulting from visceral disease the uncertainty of inadequate drugging now gives place to the precision of aseptic surgery; doubt and delay to the prompt employment of available resources. At any rate in operative interference in proper cases we avail ourselves of a definite procedure. It is of vital importance that practitioners should understand the limitations of drug therapy and recognize the point at which surgery alone can be helpful. It is not necessary in this company to catalogue illustrations. The compressed lung after a time undergoes changes that forever prevent its expansion, and we have already reached a period in the history of medicine where extreme permanent deformity of the chest, the result of a neglected empyema, excites trains of thought far from agreeable to those interested in the higher medical education; or where the sudden perforation of a necrotic, over-distended gall bladder and the discharge of its infected contents into the peritoneal cavity can be viewed with professional complacency.

In the greater number of visceral conditions amenable to operative interference more or less satisfactory rules of management have been formulated. The progress of knowledge in this respect has in recent years been rapid. In many, nay, in most instances, dicta are provisional, not final, but the measures by which applied science makes progress, observation, comparison, experiment, tend steadily to throw out false views and unsatisfactory methods. Clear-headed diagnosticians and pathologists and experienced surgeons are in accord. Diagnosis being determined, but little difficulty arises as to the decision in regard to operable and inoperable cases. There are, it is true, unsatisfactory results. Complete failure and disaster frequently occur, but the successes are often real, permanent and brilliant. The profession has every reason to congratulate itself upon the achievements of visceral surgery.

In one field, however, the general conditions are different. Doubt and uncertainty hamper action. Tardiness in the recognition of imminent danger; indecision and hesitancy; a fatuous reliance upon drugs that can not cure and upon traditional applications that our forefathers would, with a tithe of our pathologic knowledge, have at once and forever discarded, too often lead up from the catastrophy of disease to the final catastrophy of death.

I refer to perforation peritonitis. Curiously enough, what I am about to say has practically no bearing upon purely surgical lesions followed by extravasation of the intestinal contents and infection of the peritoneum. The surgeons have settled that question upon a very definite basis and apparently for all time. Every hospital resident knows that a gunshot wound or stab of the abdomen demands immediate surgical intervention according to rule, and that his chief must be summoned without a moment's delay. Not to operate in such cases under ordinary circumstances would be to invite criticism of the gravest kind, even to raise the question of malpractice. Nor does the gynecologist in his more limited field occupy a position less secure. Symptoms indicating the rupture of the sac in extra-uterine pregnancy are no longer treated by opium or salines, but by the swift, precise, life-saving steel and suture. He is equally prompt and definite in his management of acute peritonitis occurring in consequence of pyosalpinx, a condition etiologically analogous to perforative peritonitis; and in suitable cases immediate operation is his only hopeful procedure in puerperal peritonitis.

In these conditions the proportion of successful results, that is, of lives saved, is the justification of his decision and promptness. For all these cases the surgeon and gynecologist have established for themselves satisfactory rules of diagnosis and clear principles for operation. The operable and inoperable cases are respectively recognized, with a strong lean-

ing toward courage. No *ignis fatuus* of drug therapy tempts from the firm ground of experience to the treacherous morass of a baseless hope. There is no question of expectancy or delay. Even the possibility of death upon the table, a disaster unduly fearful to the too conservative surgeon, receives no more than proper consideration. The worst cases, if they be not altogether hopeless, are subjected to immediate and well-devised treatment in accordance with rules already formulated and generally accepted, and the limitations of diagnosis are subordinated to the resources of an almost perfect technique. Thus in obscure cases exploratory incision is not only justifiable, it is imperative.

It remains for the medical cases, if they may be so designated, still to be enveloped in doubt and uncertainty; still to suffer the fatal risks of tardy diagnosis and a paltering indecision as to treatment. By medical cases in this connection I mean those coming primarily under the care of the medical practitioner as such, in contradistinction to the surgeon and gynecologist, or what amounts to the same thing, coming under that of the general practitioner when in his relation to his patient he is serving in the capacity of the worker in internal medicine.

Few of us adequately realize how large this group of cases is. Acute peritonitis, the result of infection by way of perforation of the wall of the alimentary canal or of other hollow viscus, rupture of abscess or by some other analogous process, is very common indeed. It is perhaps as much more common than ordinary traumatic peritonitis, as the visceral diseases capable of producing it are more common than homicide.

Aside from the traumatic and gynecologic cases the list of diseases in which acute general peritonitis may arise is most extensive:

1. In the alimentary canal, *a*, peptic ulcer, gastric and duodenal; *b*, enteric fever; *c*, appendicitis.

2. Other hollow viscera, the contents of which may be infected, *a*, the gall bladder; *b*, the pelvis of the kidney; *c*, the urinary bladder.

3. Rupture of abscesses, *a*, purulent pleurisy; *b*, subphrenic abscess; *c*, hepatic abscess; *d*, abscess of the pancreas; *e*, appendicular abscess, and *f*, other pus collections in regions in relation with the peritoneum.

4. Necrotic processes involving abdominal viscera, *a*, internal strangulation; *b*, intussusception; *c*, volvulus; *d*, embolism and thrombosis of the mesenteric vessels; *e*, gangrene of the pancreas or of the spleen; *f*, displaced kidney or spleen with twisted pedicle; *g*, acute hemorrhagic pancreatitis; *h*, fat necrosis.

In some of these conditions, as for example empyema, hepatic abscess, peptic ulcer with symptoms of appendicitis, the previous underlying disease can be readily determined and the patient has as a rule been under observation prior to the accident which causes peritonitis. In others, such as walking enteric fever or peptic ulcer without symptoms, the patient, while out of health, is able to be about and to attend in some manner to his ordinary duties up to the time of the accident. This is also true in some cases of conditions in which acute peritonitis supervenes upon or is associated with more or less extensive necrotic processes, as strangulation, volvulus and acute pancreatitis.

In cases in which the previous condition is known the sudden occurrence of the symptoms of peritonitis bears a clear pathologic relationship to processes of the antecedent condition and a reasonably accurate diagnosis of the immediate cause of the inflammation of the peritoneum may be reached. Under such circumstances there are intelligible data for the guidance of the surgeon as to the site of the original lesion and the nature of the difficulties to be encountered. When, however, the symptoms of an acute general peritonitis arise in an individual not previously regarding himself as ill or who has not been under observation, the uncertainties of the case very often preclude diagnosis and the surgical procedure must be of the nature of an exploratory operation. But the distinction between the cases in which the immediate causal diagnosis can be made and those in which it can not be made is a matter of theory rather than of practice. It is the acute fulminant peritonitis that requires immediate consideration. Here is the question of diagnosis. If the diagnosis be correct the prognosis in the vast majority of instances without operation is fatal. Even under the most favorable conditions the percentage of recoveries will be comparatively low and this is just the point at issue. The medical cases must be placed upon the same basis as the surgical or traumatic and the gynecologic cases. In a large proportion of them the conditions for operation are more unfavorable, it is true, but a minority are now saved, and with the same promptness in operating and the same general recognition of the propriety of immediate operation this minority will be greatly increased.

"In the early stages when operative interference is advisable and not without hope, the symptoms may be grouped as follows:

"1. Pain general, becoming local; or local, becoming general, according to cause.

"2. Tenderness, general, becoming local; or local, becoming general.

"3. Rigidity of the abdominal muscles.

"4. Vomiting, green. *Exceptionally absent.*

"5. Rise of pulse and temperature. *Exceptionally also absent.*

"6. Shock, varying in depth.

"7. Diminished peristalsis.

[I have added the words in italic. J. C. W.]

"In fully developed peritonitis, in which the wisdom of interference is questionable, the symptoms are:

"1. Pain lessened or absent.

"2. Tenderness general.

"3. Distention excessive, replacing rigidity.

"4. Vomiting excessive, green or fecal.

"5. Obstipation; peristaltic movements not heard.

"6. Rapid and feeble pulse.

"7. High or low temperature.

"8. Lividity of abdominal skin; cold extremities.

"9. Peritoneal facies.

"10. Mind clear.

"In hopeless cases the above symptoms are increased with collapse; and the patient is moribund."[1]

In hospital practice almost all the cases present at the time of admission the symptoms of fully developed peritonitis and most of them are already in a condition which precludes operation. They come in to die; many of them are admitted moribund.

The importance of the condition of the abdomen can not be over-estimated. The early rigidity is a

[1] Richardson and Cobb: Park's "Surgery by American Authors," vol. ii, p. 386.

symptom of the utmost importance. My experience leads me to fear that its value is not sufficiently recognized by practitioners. To wait for distention in the diagnosis of general peritonitis is in the larger proportion of the cases to postpone operation until too late.

A well developed man, an athlete, 26 years old, complained of sudden pain in the epigastrium after exercising on the horizontal bar in the evening. The pain increased. I saw him the next morning, when the belly was flat, board-like in its rigidity, exquisitely tender and the seat of general pain. There was no rise in temperature. Operation was advised and additional counsel sought. Concurrence in my views as to the existence of acute peritonitis failed; operation was not endorsed; purgatives were administered. Ten hours later the patient died. Upon postmortem examination there was found a clean-cut circular perforating ulcer upon the anterior wall of the duodenum; general infective peritonitis; no other lesions.

A proportion of the cases are inoperable from the onset. Collapse occurs from which the patient does not rally.

A middle aged Italian in my service at the Pennsylvania Hospital in October, 1897, died within four hours of the first appearance of symptoms indicating perforation of the gut, at about the twentieth day of an attack of enteric fever. Perforation was found at the autopsy.

In a recent series of six cases of perforating ulcer of the stomach reported by different observers in which operation was performed within a few hours after the development of symptoms indicating perforation, five recovered.[2]

In Keen's recently published "Surgical Complications and Sequels of Typhoid Fever" there is a table of eighty-three well authenticated cases of operation for intestinal perforation in enteric fever. These cases were collected and carefully analyzed by Westcott. They give as a general result sixteen recoveries or 19.36 per cent. of cures and 80.64 per cent. of deaths. When this, as the author points out, is contrasted with Murchison's unchallenged figures of 90 to 95 deaths after perforation without operation we may well take courage for the future.

As regards the time of operation this table shows the following remarkable and most instructive facts:

"In the cases operated on within twelve hours, the percentage of recoveries was 26.7 per cent. Between twelve and twenty-four hours, 30 per cent. After twenty-four hours, the mortality was total, except one after twenty-six hours (No. 64) and the two that recovered between two and three days (Nos. 25 and 28)" And upon them Professor Keen makes this comment: "The last two cases we must consider as exceptional and not impairing the rule that if the operation is not done within about twenty-four hours after the perforation there is practically no hope of a recovery."

The following words of Keen with reference to operation in typhoid perforations are applicable to perforation peritonitis in general: "But, after all, the appeal must be to the facts in the case. This is the final arbiter. When once physicians are not only on the alert to observe the symptoms of perforation, but when the knowledge that perforation of the bowel can be remedied by surgical means has permeated the profession, so that the instant that perforation takes place the surgeon will be called upon, and, if the case be suitable, will operate, we shall find unquestionably a much larger percentage of cures than have thus far been reported."

In conclusion I desire to formulate for discussion the following propositions:

As regards operation in acute general peritonitis due to perforation and analogous conditions,

1. A definite causal or local diagnosis of the lesions can be made in comparatively few instances.

2. The diagnosis of acute general fulminant peritonitis is of itself sufficient to justify operative interference in proper cases.

3. The earlier the operation the greater the prospect of success. After twenty-four hours, especially if great distention of the abdomen has shown itself, operation is not likely to be followed by recovery.

4. A small proportion of the cases are manifestly hopeless from the onset.

5. Where the patient is not obviously past hope the fear of death upon the table should not deter the surgeon from operating.

W. W. KEEN of Philadelphia—I have been in the Section on Surgery and Anatomy, but left there in order that I might be present in the Section on Internal Medicine, and I have been rewarded by so doing.

The catalogue of diseases which are shown as causing perforation peritonitis is sufficient to challenge our attention. But little time passes in which we are not called to see a case of perforation peritonitis from some cause. The urgency of these cases warrants a careful consideration of the whole subject of the treatment of perforation peritonitis, and also warrants the conclusions Dr. Wilson had reached and with which I am in full accord.

However, I do not agree with him as regards the symptoms which he has mentioned as being of value. The pulse and temperature in perforation peritonitis are of very unequal value. While, as a general rule, I believe the temperature to be the best index of a septic condition, yet it is actually of little weight or value. I remember a case of suppurative peritonitis in which the postmortem confirmed the diagnosis, where the temperature was at no time above 100 degrees F. In many cases the temperature is not above 99 degrees; in these cases the temperature is evidently of little value. However, if the temperature runs high or falls low, I respect it. I was glad to see that Dr. Wilson mentioned muscular rigidity of the abdominal wall as occurring in appendicitis, especially in perforation appendicitis.

Dr. Wilson, in quoting statistics, called especial attention to those operated upon within the first twenty-four hours; this is a matter of extreme importance. If we wait twenty-four hours after perforation we can assign the patient to the grave. Logic, reinforced by statistics, confirms the statement that, in typhoid fever perforation means a mortality of 95 per cent. Cases operated upon within twenty-four hours show that we can save nearly 30 per cent. Drs. Weir and Tincker collected seventy-eight cases, operated upon during sixteen years, which showed a mortality of 30 per cent.

In cases of appendicitis I am quite sure that this Section and the profession in general will agree that if perforation takes place, especially if it occurs without adhesions and localized abscess, operation offers practically the only hope, and the earlier it is done the better. As I do not think this Section objects to

[2] American Year-Book of Medicine and Surgery, 1898, p. 182.

surgical details I will say that Wells gives a table of ovariotomies in which the incisions were two and three inches in length, but I do not think that as far as the mortality is concerned it makes any difference if they are two or six inches long. In cases of appendicitis where perforation and general suppurative peritonitis has occurred, I know that the safety of the patient depends upon the thorough cleaning of the abdominal cavity.

I am quite sure the Section has taken up an important topic for discussion, one that touches the practical physician and surgeon, and we can unite and go arm in arm in the march for life and humanity.

Dr. J. H. Musser of Philadelphia—The subject has been so thoroughly and exhaustively considered by Dr. Wilson, supplemented by remarks by Dr. Keen, that I will not say much further except to speak of my personal experience in connection with this subject. I want to speak of perforation peritonitis arising from other diseases than typhoid fever. I am satisfied that it is very essential and important that we should early recognize the cause, and, if possible, the antecedent cause of perforation. Local rigidity, localized tenderness, with pain probably at first, followed by symptoms of shock, and especially the occurrence of vomiting, with increase of pulse rate, but not necessarily any change in temperature, all are important symptoms of this condition. If possible we should anticipate perforation. Pain continuing for twelve or twenty-four hours is of great significance and is one of great dread to me. There is no other symptom which I dread so much as this one of pain; when it does occur I am very apprehensive. If these cases be examined after death, we find a perforation that is preceded by a localized inflammation; a considerable amount of lymph covers the intestines in this region, and they are matted together, and in order to get at the point of perforation, one must separate these adhesions. The phenomena preceding this condition, consists of pain, the degree of which depends upon the intelligence of the patient at that time; a patient with typhoid fever is not susceptible to pain or else their state of mind in such that they do not complain of pain unless their attention is called to it. Pain, rigidity and localized tenderness is important, as Dr. Wilson has pointed out. Pain, localized tenderness, with an antecedent history of slight rigidity, followed by symptoms of shock, are the symptoms that should direct attention to perforation peritonitis. The occurrence of symptoms of shock, hemorrhage being excluded, are the ones that we must rely upon in making a diagnosis of perforation peritonitis. I am in accord with the opinion of the surgeon who makes an exploratory incision to make his diagnosis; it is certainly murder to wait. Cases occur from time to time in all our experiences, which are obscure, and which lead us into difficulty when it is not our fault that such cases are not distinctly recognized and promptly treated. I can no better illustrate what I mean than relate the history of a young girl, 14 years of age, who was seen in the first week of typhoid fever; the diagnosis seemed to be undoubted, although it is true the reaction did not verify the diagnosis. In the course of the disease, the temperature, the mental and intestinal symptoms all pointed to the fact that she had typhoid fever. At the end of the first week she complained of some pain in the abdomen; there was no rigidity and she was without tympany. The day following, the pain was marked and severe in the back, and in order to exclude any pelvic disease—she had a discharge from the vagina—an examination was made and a large mass was found in the pelvis. I was somewhat mortified, for I thought I had been treating a case of pelvic abscess for typhoid fever. The surgeon that was with me agreed that such was the case. Evidences of general peritonitis being excluded we decided to operate. The patient died, and the autopsy showed that she did have typhoid fever, with perforation and peritonitis. There was also present a pelvic tumor.

Dr. Stockton of Buffalo, N. Y.—The question has been so ably presented by Dr. Wilson and so thoroughly discussed by members of the Section, that little is left to be said. Yet there are a few details that come up for discussion. In the first place it is a matter of great importance to discover whether the perforation has been one involving a hollow viscus, containing air like the stomach or intestines, or whether the gall or the urinary bladder. If we have a perforation from an abscess forming within the peritoneal cavity, the process is a more rapid one than that which occurs from an abscess forming in a solid organ and the symptoms are not so distinctive. The symptoms differ materially in different cases. Yet in my mind it is far from clear just when perforation is going to occur in a slow developing case. There is not much difficulty in the diagnosis and early recognition of perforation from a peptic ulcer, yet the symptoms sometimes mislead a very careful man. One case I will relate illustrates what I mean. A colored man was picked up who was in collapse and in intense pain. This pain was in the region of the bladder. The man was sent to the hospital, and we supposed that he was suffering from rupture of the bladder. For some reason an operation was not performed. The man survived nearly a week and then died. The autopsy showed perforation of the stomach. There was a round ulcer, which had opened into the abdominal cavity discharging the gastric contents there; yet after this the man survived several days. He had urinary pain and tenderness over the bladder, but no vomiting. To my mind the point that should stand out as the best guide to perforation of the stomach, intestines, gall-bladder or the urinary bladder is the suddenness of the onset of the symptoms. It is true, as Dr. Musser has said, that perforation may be preceded by slow inflammatory process preceding tympanites before symptoms of shock occur. There are symptoms which can not be referred to any particular part of the abdominal cavity. The sudden onset of pain with rigidity of muscles and a condition approaching shock makes out a case of perforating ulcer of the stomach. On the other hand, a man has often to deal with cases in which there is tenderness and rigidity of the muscles and pain, and the case goes on for several days with increasing symptoms and tympanites, and it is not easy to tell when perforation occurs. It is interesting to note the frequency with which pain is discovered remote from the time at which perforation occurs. My views of the symptoms must not be considered different from those already expressed. I should like, however, to state that it often happens that there is an absence of the symptoms one most expects, and one is so often surprised at the postmortem to find that such is the case. I have been so surprised time and again These cases

do occur, and it is for this reason that attention should be called to details and symptomatology of peritonitis. Surgery of this field should be studied more closely. A fact that is indisputable is that perforation peritonitis is followed by certain death without operative interference. The difficulty arises, I think, when we have to determine whether we have perforation in certain class of cases.

Dr. BISHOP, Pennsylvania—A point of great importance was not emphasized. I refer to the use of opium. Opium obscures diagnosis and gives false confidence to the laws of life. I would like to call attention to the fact that relief of pain can be obtained by the use of ice-bags. This winter a physician consulted me who was suffering from peritonitis. That man never stopped speaking of the comfort he got from the use of rubber bags filled with cracked ice, which was laid upon the abdomen constantly for a number of days. It is of great importance to know that pain can be relieved by ice and so we can avoid the use of opium.

Dr. HARE of Philadelphia—The character of the pain has not been sufficiently emphasized. I confess that I have not had the experience in cases of perforation in typhoid fever that Dr. Keen has had. The surgeons get the idea that these cases occur quite frequently in the hands of the medical practitioner—much more often than they do occur. Statistics show that they do not occur with as great a frequency as one would imagine from Dr. Keen's remarks. In the few cases that I have seen are two classes. One case I recall was that of a student who was lying quietly in bed who was suddenly seized with pain; he screamed in agony and died two or three hours after the onset of the pain. Another case I recall was one in which the pain commenced gradually and at the end of twelve hours began to be insupportable. To pursue these cases one should have a postmortem. In the first case there was present a perforating ulcer of the bowel. In the other case, owing to an ulcerative process going on, and an inflammatory action there, the intestines were glued together, etc, and the general symptoms of peritonitis developed. It is a mistake to believe that a perforation in typhoid fever must be accompanied by violent pain, or slowly oncoming pain. Last summer I saw a case that had an attack of abdominal pain as violent as that of peritonitis; it was apparently one of wind colic and the passing of fecal matter relieved the pain.

In these cases I do not believe there is a more anxious surgeon than I. I believe in having a surgeon to operate who uses his judgment and wisdom.

Dr. F. BILLINGS of Chicago—I thank Dr. Wilson for the clear and general outline he has given us. The enumeration of the symptoms he has given us no one can deny as being accurate. Of course there are exceptions to the general symptoms as laid down by Dr. Wilson, and no one individual is present who could not recite some case where one or all the symptoms were present.

I want to emphasize some of the things already said, and especially the points mentioned in regard to the antecedent history of these cases, which I consider so important—quite as important, or more so, than the symptoms already enumerated. One must remember that it is the exceptional cases which are of the greatest importance to us, and not so much those that are classic in form. Pain is enumerated as an important symptom, yet pain may exist up to the time of perforation and then suddenly cease; all of us have seen this happen. I have seen cases of perforation in appendicitis in which the patient seemed to be in a perfectly normal condition so far as pulse and temperature was concerned; there were no physical signs to show that there was anything the matter; the pulse was normal, the abdomen was flaccid, with no points of tenderness. But pain suddenly coming on, operation was advised and done and there was found a rupture of the appendix.

There is another thing about which I wish to speak, and that is in regard to rigidity of muscles, which is always present and always may be found.

It is the exceptional points which appeal to an individual. But the lines as laid down by Dr. Wilson are no doubt true in general terms.

H. M. MCCONNELL of Pennsylvania—There are two important points of diagnostic interest that I should like to mention, absence of elevation of temperature and rapidity of pulse rate. In cases that I have seen in consultation I have had the greatest trouble to impress upon the attending physician that the absence of temperature indicates that there is no peritonitis present. I could not imagine a case of peritonitis where the pulse remained at the normal point for any length of time. I can not conceive any case of perforation where the pulse is normal.

Dr. H. J. HERRICK of Cleveland—I recognize that the discussion is upon suppurative peritonitis; the conclusions are well taken and the symptoms well given, but this question has not been entered upon, it seems to me.

Dr. COKENOWER of Des Moines, Iowa—I wish to emphasize a point in regard to the use of opium; this drug relieves the pain and it is then almost impossible to get the consent of the patient for operation.

Dr. WILSON of Philadelphia—I wish to emphasize one or two points which, it seems to me, has been overlooked. The purpose of my paper was to use such influence as I had with the profession to urge upon them the necessity of referring cases of acute peritonitis, arising suddenly, to the surgeon; and the surgeon should treat these cases. The medical cases should be recognized and managed the same as surgical cases are recognized and managed. These are not cases for the medical practitioner. In a large hospital in a large city I asked the medical director certain questions; he said that among 3000 in-door cases there were a great many cases of acute peritonitis that were brought into the hospital who died within twelve hours. Many of them upon admission were drugged with opium, either to relieve their pain or uncontrollable vomiting. I am pleading for the lives of people, under these circumstances. The medical practitioner, outside the hospital, who see these cases first should recognize them and not drug them with opium, or else they should call to their aid an experienced and skilled surgeon. They then will be looked upon, recognized and managed as surgical cases.

In regard to what has been said in the discussion, I wish to state that we all know that perforation peritonitis comes on in various ways; it may come on like shock. There are cases in which, owing to the mechanical condition present, there is a little rent, through which follows a local infection. This gives rise to an adhesive peritonitis which is local. Other symptoms are produced later.

I am pleading for the lives of those that die in the

first three, four or five days, many of which might be saved.

I must say a word on another point. Every now and then there occurs a case in which the symptoms are not classical and not well defined. The case shows no pain—none at all in the right iliac region. Presently comes on tympany and the patient appears to be ill and the case looks like peritonitis. Cases of this kind of acute peritonitis are not general. I have met with several cases like this. Eight or nine years ago, a girl had an attack; Dr. Keen and I watched the case thirty-six hours; she got well without operation. I have seen other cases, two years ago, and again quite recently—within six weeks—a woman presenting the same symptoms. The point is this: These cases are not different from cases of fulminating explosive peritonitis in the hands of the medical man and they are not to be drugged with opium.

SOME PATHOLOGIC AND CLINICAL PHASES OF GALL-STONES.

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Among the most common diseases of the abdominal cavity may be mentioned those of the biliary ducts, and of this class cholelithiasis is the most frequent. In fact, so common is this condition that in several thousand postmortems no less than 7 per cent. of cases with gall-stones were found, and it is a curious conclusion to which some clinicians have arrived, that as these cases did not present any evidence of the presence of the stones, it proves that the majority of those suffering with gall-stones will get well if left alone. Many cases of gall-stones present no direct testimony of their presence, while others give evidence in the most emphatic symptomatic language.

The causation of the formation of gall-stones has been a theme for discussion for many years by some of the ablest clinicians. A few years ago in the direct causes were enumerated stagnation of bile, inspissation of bile, advanced age, sedentary habits, tight lacing and abdominal tumors, all in a measure acting in the same way; that is, interfering with the free circulation of the bile.

The bile is a watery secretion containing 1 to 3 per cent. of solids, with bile pigment and bile acids as normal ingredients. It would seem in the young (under 20) the disease is rare, and that the age of 40 furnishes the largest number of cases until the age of 60 is passed, then the disease becomes relatively more frequent, and after this age there are fewer cases presenting symptoms pointing to the presence of stones (colic, etc.) Old people are more frequently affected with malignant diseases in the pyloric and duodenal segments of the alimentary canal, and modern pathologists recognize in the presence of gall-stones a factor in the production of these neoplasms; hence they are treated for the results and not the original cause.

Most of my cases have been in males. Most writers place the proportion at females five to males one. The cause especially present in females being tight lacing, laxity of abdominal walls, child-bearing—90 out of 115 cases in females had borne children.

Lunatics, from their sedentary habits, are said to be prone to gall-stones. I do not believe that idleness alone ever produced them; if so, the disease would be more prevalent; heredity is not a cause, nor diet alone unless of a character to induce a gastro-duodenitis. The normal ingredients of the bile entering into the formation of gall-stones are bilirubin, biliary salts and cholesterin in abnormal quantities, often found in the gall-bladder. A pure cholesterin stone is rare and usually has some other ingredient as the nucleus. Those found in the hepatic ducts are, as a rule, the bilirubin-calcium stones, while those in the gall-bladder have bilirubin-calcium as a nucleus with cholesterin on this nucleus; the original focus having its origin in the hepatic duct and subsequently finding its way into the gall-bladder. The little hard, round, solitary stones found in the ductus choledochus are, as a rule, of bilirubin-calcium. Most stones are found in the gall-bladder, for it is here that the conditions most favorable for their formation and retention exist.

The old writers maintained that these stones were the result either of an overproduction of cholesterin by the liver or to a want of its proper solvent in the bile, thus permitting the substance to deposit and form stones. Later authors say that cholesterin is a result of disintegration of the epithelium of the mucous membrane and glands of the gall-bladder and larger bile ducts. Cholesterin is a substance of wide distribution over the body. It is found in various solids and fluids, in the expectoration of consumptives, in pus especially, in locations where there exists a mucous membrane. In bile from the liver .07 parts per 1000 of cholesterin is found, while the analysis from bile in the gall-bladder shows 3 to 11 parts per 1000. Occasionally pure masses of cholesterin are found in the gall-bladder. The preponderance of the evidence is against the old theory that these stones are formed by the bile failing to hold in solution the cholesterin, which was formerly held to be an abundant normal constituent of the bile. It would appear that cholesterin is formed in the gall-bladder and is in the bile as an emulsion. Bilirubin calcium is an insoluble compound, the outgrowth of the union of bilirubin and the lime salts. The bile salts sodium-glycocholate and taurocholate prevents this union naturally, even in the presence of a moderate excess of lime, but if an abundance of lime is added a precipitate of bilirubin-calcium results.

If to a weak ammoniacal solution of bilirubin there is added a few drops of lime water, an immediate precipitate of bilirubin-calcium takes place. If now to this same solution 2½ per cent. of glycocholate of soda be added it takes five times the quantity of lime water to cause any precipitate at all. This experiment has an important bearing in a prophylactic way.

Albumin favors the precipitation of bilirubin-calcium. The outpouring of a catarrhal change in a mucous membrane is largely albuminous. A gastro-duodenitis may lead to the stagnation of bile and thus act as one of the prime factors in the precipitation of this fluid, but it is not alone sufficient, for as long as no septic micro-organisms are present the disposition of the bile is to hold the stone-producing ingredients suspended or in solution. The bacillus coli communis is often the cause of catarrhal changes in the biliary passages. Naunyn found that if he injected the bacillus into the gall-bladder it excited no inflammation, but if the common duct was previously ligated the most intense cholecystitis was excited.

An infection of the gall-bladder gives rise to an

increase in the amount of cholesterin by destruction of and disintegration of the epithelial cells, and to a precipitation of bilirubin-calcium. The latter acts as a nucleus for most stones. The attacks of cholangitis may be of a transient character and yet leave the nuclei of many stones in the gall-bladder. These may or may not give rise to any symptoms directly attributable to their presence, yet the presence of stones in the gall-bladder may produce an influence on the general health of the individual that may become of a serious character.

Early diagnosis in many cases means prophylaxis. Obstructive jaundice, hepatic colic and ptomain poisoning are usually late manifestations. If in 10 per cent. of all postmortems there are found gall stones that were not suspected during life, owing to absence of symptoms of a severe nature, I am sure a close inquiry in some of these cases would have elicited a history of "bilious attacks," recurring headaches, a sense of uneasiness in the gall-bladder region, loss of weight, etc. If no infection exists when stones are in the gall-bladder their presence does not excite much pain, but when a stone becomes lodged in the common or even in the cystic duct then a paroxysm known as hepatic colic will supervene. Probably only two-thirds of patients with gall-stones ever have severe colic symptoms, but it is not the pain that kills in these instances.

Spasmodic closures of the pylorus may be mistaken for hepatic colic, but with a recognition of the accompanying gastric dilatation and by hyperacidity in these cases, a diagnosis can usually be made. It is not necessary that suppuration exist in order to have rigors and fever, the so-called "hepatic intermittents" of Osler. These irregular chills are due to the absorption of ptomains. When the stones are located in the common duct near its entrance into the duodenum absorption is especially liable to take place, for it is at this point that the lymphatics abound most plentifully. A small round stone will frequently become lodged just at this point and make for itself a bed in the mucous membrane by destroying the epithelium, thereby opening the avenues of lymphatic absorption. A stone in this location may remain for an indefinite period, giving rise to symptoms of a mild or severe character, depending on its disposition to become wedged into the duct and the completeness of this closure. These ball-valve stones are the most persistent in duration, the greatest in danger and the most difficult to cope with surgically. A stone lodged at this point and remaining for months or years is dangerous from the persistence of its health undermining properties, in a mild and gradual way (chronic sepsis and persistent mild cholemia) and from the remote danger of a cancerous development at the site of constant irritation. Where the obstruction is complete the ducts and gall-bladder become greatly distended with the bile and other normal and abnormal fluids. The lymphatics take up the coloring matter, distribute it through the blood channels to the whole mucous and cutaneous surfaces and thus jaundice is produced. A remarkable change takes place in the gall-bladder in some of these cases in which the common duct is occluded; that is, the bladder becomes contracted instead of dilated; this is in part explained by the action of Heister's valve and in part to the often present pericholangitis. A persistent and complete closure of the ductus communis choledochus frequently leads to cirrhosis of the liver.

The choledochus stones are found in about 10 to 15 per cent. of all cases presenting marked symptoms. Thornton (1848) was the first to remove a stone from the common duct, since which time the operation has been performed by many surgeons all over the world. Within the last five years the histories of cases have been carefully studied for the purpose of making early and correct diagnoses; this has led to an analysis of the symptoms, making it possible to differentiate stones in the gall-bladder from those in the common duct. The specific gravity of gall-stones is very light, 1020 to 1030, while that of bile is 1030. A ball-valve stone may float about in a dilated duct, changing its position easily. This in part explains the sudden cessation of the pain in some cases of colic, even though the stone does not escape into the duodenum. A change in the position of the body may cause a dislodgement of a light stone, provided the stone is not partially imbedded in the surrounding structures.

The function of the gall-bladder is not that of a reservoir for the bile, as it holds but an ounce and a half, while the twenty-four hours' secretion is about forty ounces. I believe the gall-bladder has some especial function. Most likely a digestive ferment is manufactured here in the quiescent stage of the liver.

The gall-bladder has been removed (Von Laugenbuck, 1802) successfully several times, but so far no scientific clinical data is available bearing on the progress of these cases, post operative. Upon a proper diagnosis depends the correct management of these cases. Were the obscure symptoms presented by many chronic invalids interpreted correctly a goodly number of the cases would prove to be cholelithiasis. Many a swarthy (icteric tinge) patient with loss of weight and interference with digestion and proper assimilation will, I believe, be found to have gall-stones stored away in the bile passages, and that their presence has interfered with the formation of some especial digestive agent, or has given rise to the development of noxious substances which have gradually undermined the health.

While jaundice is an indication for surgical interference, it is at the same time quite a serious bar to operation, as these chronic cholemic patients are, almost without exception, bleeders and they stand surgery and anesthetics very badly. All arguments favor early surgery where symptoms point to its necessity at all.

The treatment of these cases depends upon the symptoms. An ordinary attack of hepatic colic, due to the passage of a small stone will, in all probability, terminate favorably within a few hours or days, and if the stone was the only one present and succeeded in finding its way into the duodenum the case will require no farther care. If the case is one with well marked ball-valve symptoms, the stone will probably remain in the duct, giving rise to painful and dangerous symptoms until its surgical removal is effected. If the stones are in the gall-bladder and are giving rise to infection or suppuration in this viscus then an operation should be early resorted to. It is rare that pain alone, as a persistent symptom, forms an operative indication, yet frequent exacerbations of pain with the usual attendant symptoms of jaundice may demand operation. The mortality in skilled hands is very low. The surgery is difficult and requires careful anatomic discrimination, a familiarity with the pathology and exact surgical acumen. If these

essential prerequisites are not possessed by the operator, his work will show imperfect results and high mortality.

DEDUCTIONS.

1. Cholelithiasis is of frequent occurrence and usually gives rise to symptoms either severe or obscure.
2. Cholesterin as a gall-stone producing agent must be present in an abnormal quantity.
3. Cholesterin is in a great measure a product resulting from the destruction and disintegration of the epithelium of the biliary ducts and gall-bladder.
4. Bilirubin-calcium, an insoluble compound formed by the union of bilirubin and the lime salts, forms the nucleus of most of the stones formed in the gall-bladder.
5. Jaundice, ptomain poisoning and suppuration are late symptoms of cholelithiasis.
6. Dyspeptic symptoms, swarthy skin, uneasiness in the region of the gall-bladder (congestion of liver) and loss of weight are some of the remote and local symptoms of the presence of gall-stones.
7. Inflammatory diseases of the duodenum and bile passages are the most direct causative factors in the production of gall-stones.
8. The surgery of these cases is especially difficult and the inexperienced should not undertake it.
9. A ball-valve stone usually continues to give rise to symptoms until removed by surgical means.
10. Stones in the gall-bladder, producing septic symptoms, should be removed.

A NOTE ON THE TREATMENT OF CARCINOMA OF THE UTERUS.

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The improvement in the condition of several cases of uterine cancer under the treatment herein described seems to me worthy of record. The idea of curing cancer by means of remedial agents has never found lodgment in my mind. Many patients have inoperable cancers; many others can not pay for the surgical operations in vogue for cancer today, and remain at home and suffer horribly till death comes to them as a welcome visitor. To such people, the treatment by the carbid of calcium will be a blessing. In two cases, the first ones treated by this agent, there was such a complete abolition of the trilogy of symptoms so characteristic of uterine cancer, viz.: discharge, odor and hemorrhage, one could easily be tempted to call them cures, did I not feel that I ought to wait at least two years for a possible return of the disease locally or remotely.

This dreadful disease has until very recently had but one termination, viz., the death of the patient. I know of no more loathsome malady in its last stages. The odor of it fills the sick room *ad nauseam*. I have known it to fill the entire house for weeks and months before death finally came. It so saturates a doctor's clothes that he can smell and fairly taste it the balance of the day. I know of no disease that emits a more repellant and disgusting offense to human nostrils.

In considering this subject, it is thought best to pass in review the investigations and opinions of the present day on the pathology of *cancer*. After that will follow the consideration of the *carbid of calcium* and *acetylene* gas, the remedial agent used. Lastly, the cases treated will be presented.

An experience of seventeen months is too brief from which to draw lasting conclusions. Reports by many different observers from different countries are necessary to furnish results which shall remand the use of carbid of calcium to its proper place. It is desired to offer this initial paper as a contribution to the treatment of one of the most fatal diseases of the human race. Originality in discovering the application of this agent in its use herein described is distinctly disclaimed.

Recently vaginal hysterectomy has afforded one means of dealing curatively with this fell disease provided the operation be performed early enough. We never know in any case whether the operation be performed early enough to forestall death. I have done vaginal hysterectomy for uterine cancer when it occupied a space not larger than my thumb nail and have seen the patient die in less than thirteen months from a recurrence of the disease. Again, I have removed a uterus whose cervix had been wholly eaten away by carcinoma and seen the patient alive and well five years after the operation. I therefore conclude that vaginal hysterectomy can not be depended upon to bring lasting results in all cases. Indeed, I have seen so many cases of recurrence after total extirpation that I have long been searching for some means that promises better results. I have used many much praised remedies, and have turned away from them because of their failure to secure curative results. I used Chian turpentine faithfully, which I had had imported from London so as to be certain that I was using the article so much vaunted by Clay of Manchester, several years ago. It was a complete disappointment. Alcohol, greatly praised recently, used in parenchymatous hypodermic injections, has suffered the same fate. Arsenite of copper has likewise failed in curing cancer. Other remedies have been used that have had many claims made in their favor, but up to this date, not one stands the test of experience. If any one agent were reliable in curing cancer, we would hear of no other means of treating it. Such a remedy the medical profession is looking for.

Pathology of cancer.—The cause of cancer was well known a few years ago, it was thought. Now, it is acknowledged to be one of the most thoroughly unknown subjects in the whole range of pathology. As late as 1890, the following was written by Pozzi in his monumental work entitled "Medical and Surgical Gynecology" (Vol. I, p. 333): "The great predisposition of the cervix to the development of cancer has ben noticed by all observers. Is there anything in general anatomy which will explain the fact? Cohnheim has supposed that the embryonal cells which have not been absorbed in the function of the organs, and which are found scattered through the connective tissue or gathered in islands at certain points, may be the matrix tissue of carcinoma. These tumors are found most frequently in the nests of embryonal cells which define the natural orifices of the body, where there is more or less irregular involution of the blastodermic layers; the cervix uteri, developed relatively late, at the expense of the Müllerian ducts, belongs to this class of congenitally vulnerable points. The presence of two varieties of epithelium at the external os and the consequent plastic polymorphism which results, may also be a factor in their production. There remains unex-

plained, however, the exciting cause of the neoplasm. The repeated afflux upon which Cohnheim lays so much stress does not account for it."

This elaborate explanation of cancer only serves to show that our knowledge of its etiology at that time was absolutely negative. Ever since bacteriology came into our work, investigators have been busy in attempts at solving unknown problems in etiology. Within a few years it has revolutionized surgical pathology. It has illuminated many places that were formerly as dark as Erebus. The causes of many of the commonest diseases have been made as clear as the noonday sun. Many diseases are still baffling our bacteriologic researches. One of the most important of these unsolved etiologic problems is cancer. Occasionally, a glimmer of light seems to come, promising a full illumination of the subject. Scheuerlin thought his investigations cleared up the subject. In 1886, he isolated from cancers of the mamma a bacillus which, he asserted, is the active agent in the causation of cancer. It grows rapidly on blood serum, agar and gelatin, slowest on the last; and forms a red deposit on potato. Its spores stain only by the Ehrlich method in use for the tubercle bacillus, but the bacillus itself stains readily by ordinary means. He injected pure cultures into the mammary glands of dogs with the effect of inducing a hard tumor which, he states, is epithelial in its character. However, Koch and other Berlin bacteriologists are inclined to doubt its having to do with cancer, and look upon the morbid condition of the mamma set up as being simply a mastitis ("Text-Book of Pathology," D. J. Hamilton, Vol. I, p. 407).

Very many forms of bacteria have been found in the microscopic examinations of cancers. Their presence is accidental. They are not causative. That they are not the essential etiologic factor of cancer is shown by the fact that, when inoculated into healthy tissue they do not produce cancer. Other pathogenic bacteria whose history and disease-producing power have been verified repeatedly, will produce the diseases from which they are taken. To illustrate: Tuberculous bacilli introduced into healthy animals will produce tuberculous animals, which in turn will supply new bacilli that can produce tuberculosis in other animals. Thus many successive animals can be successfully rendered tuberculous from one original inoculation, proving incontestably that the bacteria of disease produce their kind. Many other diseases can be produced at will. Tuberculosis is not the only one. The horrible malignity of cancer has made it an object of especial interest to bacteriologists, for, if we can isolate and demonstrate the especial bacterium of this dread disease, we stand in an infinitely better position to find its cure.

In 1896 Kahane, who was the first to describe the presence of blastomycetes in malignant tumors in his last communication (*Centralbl. f. Allg. Path. und Pathol. Anat.*, June 15, 1896) states that the blastomyces which he has constantly found in malignant growths is nothing more than the common yeast, saccharomycetes cerevisiæ, and he defines, tentatively, epithelioma (on which his statistics have chiefly been made) as the expression of a peculiar symbiosis of epithelial cells, leucocytes and saccharomycetes.

Roncali studied five sarcomata, in all of which he found blastomycetes that resembled each other very much and were similar to those described by Sanfelice, and by the author, as occurring in adenocarcinoma of the ovary. They take the specific stain of blastomycetes, and resist the action of acids and alkalies like those found in the adenocarcinoma of the ovary. The parasites may be found within and without the cells, exceptionally also in the nucleus; they multiply by budding, and may in the early stages, *i. e.*, when without membrane, possess an abundant chromatic protoplasm, or in the adult stage, *i. e.*, with membrane, may have but little chromatic protoplasm or a protoplasm that has entirely lost the power of staining with analin dyes. (*Centralbl. f. Bakt. und Parasit.*, Oct. 26, 1895).

Sanfelice has made inoculations into guinea pigs, of a yeast which he terms saccharomyces ellipsoideus neoformans. Animals that had received an inoculation into the subcutaneous tissue died, on an average, in thirty days. The inoculation was in a few days followed by a local swelling, which might or might not break down. The lymphatic glands of the groin and axilla also became enlarged. At the autopsy the tumor in the subcutaneous tissue was soft, not firmly adherent to the skin, and presented an appearance like that of the flesh of fish; the lymphatic glands had the same characters. The spleen was enlarged and was studded with elevated whitish nodules; the liver was but slightly increased in size, and rarely showed the whitish spots seen in the spleen. In the kidneys the nodules were more common than in the liver. The intestinal follicles and lymphatic glands were enlarged. The lungs were also enlarged and contained whitish areas. Brain, heart and adrenals showed no microscopic change. Guinea pigs that were inoculated into the testicle died in the course of twenty-five days. Testis and epididymis were enlarged and contained fish-flesh-like masses. Inoculation into the liver was followed by the development of tumors, single and multiple, in that organ. The changes were most marked after intra-abdominal inoculations. A severe peritonitis, which the author terms a neoplastic one, was always noted. The viscera also presented nodules as previously described. The nodules contained enormous masses of blastomecetes. Many leucocytes containing blastomycetes were seen. Histologically the tumors consist of a network of young connective tissue in the meshes of which a variable number of cells resembling lymph-corpuscles is seen. Parasites are so abundant as to constitute the greater part of the nodules. The majority of parasites lie free, and vary in their tingibility. The enlargement of the lymph glands depends more on the immense number of parasites present than on a proliferation of the cellular elements. The parasites could be demonstrated in nearly all the organs, but produced no reactive inflammation. The absence of epithelial hyperplasia in guinea pigs is explained on the ground that death occurs too soon for it to take place.

The author then proceeds to point out the striking similarity between the appearance of the blastomyces in the tissues and the so-called coccidia described by many writers as occurring in the malignant tumors of man, and comes to the conclusion that the latter bodies are not protozoa, but blastomycetes, a view that had already been advanced by Russell. ("*American Year Book of Medicine and Surgery*," 1897, p. 708).

At this point, I wish to make an extensive quotation from a reprint by Prof. R. Park of Buffalo on the

"Etiology of Cancer," just received from him. My work of looking up this topic had reached this point when his article appeared, most opportunely. The paragraphs quoted present to us the completest statement of our most advanced knowledge of this much studied topic: "The work of the Italians in this direction has been most creditable and apparently most convincing. It has been done for the most part by Prof. Sanfelice, of the University of Cagliari, in Sardinia, and Prof. Roncali, of the University surgical clinic in Rome. The former published his first paper on the subject in January, 1895, and the latter followed with his first only a month later To these two men and their assistants we owe most of that which I shall epitomize below.

"As the work of these Italians points, with a high degree of probability, toward the blastomycetæ as the active agents, it will be worth while to stop for a moment and rehearse the most important facts known with regard to this class of fungi. It is best known as that to which the common yeast forms belong. These fungi reproduce themselves, not by division into halves, as do the common bacteria, but by the process of budding; the cells, when undergoing this process, appearing under the lens much like the common forms of cacti. Each bud provides itself with a membrane when separating from the parent cell, and thus becomes complete in itself. The parent cell does not die in this process, but gives rise to other buds, the entire process consuming about two hours in those forms where the life-history can be easily watched. This is slower cell division than occurs with the ordinary bacteria. The new cells thus produced are often bound together in clusters or irregular chains. Each cell has its proper membrane, which is filled with protoplasm, and contains a nucleus. It will average eight to ten millimeters in size. Under particularly favorable circumstances spore-formation may also take place, so that from two to ten endospores may be seen in one parent cell. These spores are less resistant than those of the common bacteria. They are killed by five minutes' exposure to 62–70 degrees C. Those blastomycetæ which are capable of spore-formation are the least hardy, living in the ground for about a year, while others can live, under the same conditions, for three years. This is worth remembering, because there is much reason to think that these fungi are introduced into the system from the most common sources and by the ordinary paths of infection.

"They will grow on media which are slightly or strongly acid, and by this means can be separated from many of the common bacteria. Each species has its own peculiarity as to behavior respecting the various sugars. For example, by an ordinary wine yeast 1000 grams of grape sugar were split up into 506 grams of alcohol and 30 grams of other products, including 21 grams of glycerin. (By the way, the taste of various wines is quite perceptibly influenced by the amount of glycerin present therein.) Alcohol fermentation can go on with or without access of air. If air be present, cell production is more active, and other cell activity is lessened and *vice versa*. Acetic fermentation and putrefaction are facultative aerobic actions.

"So far as pathogenic activities are concerned, blastomycetæ are known to be active disease agents in certain cases. They are commonly found in the urine of diabetic patients, but whether by accident or in some other relation is not positively known. Numerous forms have been cultivated and inoculated, with resulting severe or even fatal symptoms, as in the morbid condition called saccharomycosis, which is known as an experimental disease. Thus it is established that a general infection from this cause is possible, and the question may arise whether general carcinomatosis is of this nature.

"Now, it is almost exclusively the blastomycetæ with which the Italians have worked, and have produced their remarkable experimental results, for they have found these organisms both within and between and around cancer cells, and have succeeded in making cultures in and upon acid media. Moreover, by inoculations with these cultures they have produced tumors in animals which bear the strongest possible resemblance to those neoplasms from which the cultures were originally made.

"These parasites must be sought for in the periphery of the tumors and in the juices of the same, but not in the central portions, for here they often seem to have disappeared. This is true both of sections for microscopic examination and of the portions which are taken for inoculation purposes. Furthermore, most of the experimental tumors thus produced have returned the same blastomycetæ upon further culture tests. Two or three different forms have been definitely named by their discoverers; thus Sanfelice has described a saccharomycis lithogenes, and Roncali a blastomycis vitro-simile degenerans. These names both call attention to the remarkable properties which some of these fungi possess, not only of undergoing rapid degeneration, but of displaying a peculiar calcareous deposit within the cell membrane, which is undoubtedly due to calcium carbonate, since when these are treated with 4 per cent. solution of hydrochloric acid the degeneration forms all disappear, while when treated with 4 per cent. sulphuric acid, crystals of calcium sulphate form. As showing also their marked tendency toward degeneration, Roncali placed two pieces of tumor in a Petri capsule and kept it 37 degrees C. for four days. In the juices the undegenerated forms were undoubtedly much more abundant than in the fresh specimens, which would indicate their truly parasitic nature.

"As an illustration of the method of securing cultures, he prepared in one case sixty tubes of distilled water containing a little sugar and acid; in each of them he placed small bits of tumor cut with a sterilized knife. These were kept at 37 degrees C. for ten days, when surface growths were found upon forty-seven of them, which, when examined in the hanging-drop, were easily recognized as blastomycetæ.

"Sanfelice has produced small tumors in numerous of the smaller animals by injection of his saccharomycis above alluded to. It is most interesting also that some of the blastomycetæ which he discovered in tumors were identical with those found upon the common lemon, which grows so abundantly upon Italian soil. Among other experiments he injected saccharomycis into the mammary gland of a bitch, which lived for fourteen months and then died with a definite tumor in the gland and with metastases in various organs. Also, after injecting this culture into the abdomens of guinea pigs, he saw them die in from twenty to forty days as the result of neoplastic lesions, while when injected beneath the skin, they killed the animals in from thirty to fifty days with local manifestations.

"Thus, without quoting in detail the experimental labors of Sanfelice, Roncali and their pupils, it may be stated as positively proven that the blastomycetæ above alluded to, *i. e.*, at least some of them, are capable, first, of being isolated by culture methods from certain carcinomata and sarcomata; second, of identification as belonging among the yeasts; third, of producing tumors in animals by injection under suitable precautions, the resulting tumors being strikingly analogous to or identical with those from which cultures were made; and fourth, of furnishing from these tumors further cultures, from which yet other experimental inoculations can be made.

"Without going so far as to say that this can be done in every instance, or that all cancers are necessarily of parasitic origin, one is justified by these results in at least maintaining that some cancers are positively of such origin. If upon this experimental ground, one should infer that all cancers are parasitic manifestations he would do, as will be seen, little violence to the laws of logic."

The foregoing quotation gives all that can be offered up to this writing on the latest investigations on this vexing question.

The agent used in the cases I herewith report is the carbid of calcium. Its name indicates its composition. M. H. Moisson first obtained, in 1894, a crystalline compound of carbon and calcium by employing the intense heat of his electric furnace whose temperature may approach 3500 degrees C. Its specific gravity is stated to be 2.262, the low figure being due to the fact that calcium is next to the alkali metals, one of the lightest of the metallic bodies. Exposed to the atmospheric air it is soon resolved into coarse powder-like sand. It is very refractory. A chisel and a hammer are necessary to reduce it to small pieces suitable for use in treating cancer. In the presence of water acetylene gas, the new illuminant, is instantly evolved. Upon dropping a fragment into a basin of water, one can ignite the escaping gas, which presents the apparent phenomenon of burning water.

The chemic formula of the carbid of calcium is CaC_2. That of acetylene gas is C_2H_2. It is liberated from the carbid of calcium by water. The equation representing this is $CaC_2 + H_2O = C_2H_2 + CaO$. A piece of the carbid of calcium can be thrown into a firy furnace and it will not ignite. It can be fused and run into molds of any design without ignition. A piece can be held in a Bunsen burner without the least effect. But if a drop of water is put on the stony substance, it effervesces and the gas can be lighted and will burn like a piece of wood for a few seconds until the water is exhausted. Then it goes out.

Commercially, acetylene gas is very valuable. Discovered only five years ago, it has already become a most formidable rival of the old gas companies. It is rapidly being introduced as the illuminating agent in residences at a moderate expense. It is meeting with especial favor in small towns where no gas companies exist. Individual plants are set up in back yards where safety from explosions is secured, whence the gas is conveyed by proper piping to the houses, which are thus more brilliantly lighted, many times over, than by ordinary illuminating gas. It produces a singularly white, bright flame. Several jets of it can make the ordinary Edison incandescent coil appear like a red-hot hairpin. Many of the old time gas companies are adding a small proportion of acetylene gas to that used by them, with the effect of giving their customers better light. So clear, steady and powerful is the light made by acetylene gas, it has been proposed to make it the standard for photometry. The numerous ways in which it is already used indicate the readiness with which its superiority is accredited. It is used in bicycle lamps. The oculist, aurist, and laryngologist are using it to illuminate the organs that they investigate. It is used in electrometers. It is used in lighting omnibuses. It is employed in the stereopticon and in photography. Microscopists and chemists in blow-piping, are employing it. It possesses a very low temperature of ignition. It can be solidified at a comparatively low pressure ("L'Acetilene e le sue Applicazioni." Published in Milan, Italy). When liquified, it passes into the state of snow, like carbonic acid. This snow, upon evaporating, lowers the temperature 180 degrees.

Acetylene, containing C and H, permits the curious fact that the proper amount of oxygen can be added to it to make pure alcohol. Commercially pure alcohol can thus be made at a cost of four cents per liter.

Acetylene gas is distinctly poisonous when administered to animals in a sufficiently concentrated form. Inhaled in the open air, it is but slightly harmful. The recent experiments of Grèhant, Berthelot and Moissan show that it is fatally poisonous when present in proportions as high as 40 per cent. by volume. One hundred volumes of air dissolve about eighty volumes of acetylene. If any compound of acetylene and hemoglobin is formed, it is very instable and is not analogous to carboxyhemoglobin (Brociner: *Boston Med. and Surg. Jour.*, July 30, 1896). One pint of pure acetylene given rapidly to dogs, guinea pigs and other animals caused severe symptoms of poisoning, but the animals recovered when placed in the open air. If given slowly, they did not recover when placed in the open air (Mosso and Ottolenghi: *Rif. Med.*, Jan. 23, 1897). Paralysis of the respiratory function is the toxic effect of this gas.

Recently many reports of explosions of acetylene have been made in current publications. Its explosive power is greater than that of ordinary illuminating gas, but it is not more dangerous when the ordinary precautions are taken. Brass should be avoided in pipes and burners intended for use with acetylene, since it unites with copper to form solid copper acetylene which explodes violently on percussion or on heating to 200 degrees C. Rosemann states positively that acetylene does not combine with hemoglobin (*Arch. f. exper. Path. u. Pharmakol.*, V. xxxi, p. 179). The poisonous action of acetylene, while admitted by by all experimenters to exist, is now claimed to have been greatly exaggerated by earlier investigations because of the probable presence by impure gas (Grèhant, Berthelot, Moissan and Beocinet: "Comptes Rendus," 1896). Its odor is not unpleasant. To some people it is faintly aromatic. When the carbid of calcium is reduced to the pulverulent state, the gas can still be evolved and ignited.

In the fall of 1896, I first saw reference made to the use of the carbid of calcium in the treatment of uterine cancer in some medical journal. It was contained in about four lines, which stated that some German physician used it in treating cancer of the uterus. I have forgotten his name. I therefore distinctly disclaim all pretense to originality in its use.

Treatment.—After determining that I have to deal

with uterine carcinoma, the necrotic debris is thoroughly removed by curetting under anesthesia, till firm tissue is reached. Hemorrhage from arterial twigs is then checked by the use of the Paquelin cautery. Free irrigation with very hot water is then used to check the oozing, if necessary. It is desirable to have the seat of the operation as dry as possible before using the carbid. Into the cavity which extends to a greater or less extent up into the body of the uterus, a piece of the carbid about the size of the last phalanx of one's thumb, is placed. At once, acetylene gas is evolved which quickly fills the entire cavity with a froth, like soap-bubbles. The cavity is at once packed firmly with iodoform gauze. The vagina is packed full of the same material down to its ostium. The patient is then put to bed for three days, when the gauze and the carbid remains are removed and a new piece is used. The carbid remains are naught but a grayish clay covering the cavity in the body of the uterus. It can be sponged and irrigated away in a few minutes, dried by sponging and prepared thus for another application of the carbid. Upon depositing the carbid in the wound, we witness the same bubbling of gas as seen before. Gauze packing is then used and the patient is permitted to remain three days until the next dressing.

After a series of such applications of the dressings, the ragged, necrotic-faced ulcer is converted into a simple, clean ulcer. It presents a base covered to all appearances with pinkish-red granulations, destitute of the gray color which characterized its appearance after the second or third dressings. After a few treatments the edges of the cavity begin to draw in, and the area of the crater is diminished. Its entire appearance impresses one with the idea that it has taken on an entirely healthy character. Further persistence in its use is followed by progressive contraction till finally the cavity is entirely obliterated. There is a puckering of the vault of the vagina about the small uterine os that remains, the whole field being covered by healthy pink mucous membrane.

CASES TREATED.

Case 1.—Mrs. Y., aged 69 years. Her last child was born forty six years ago. She passed the menopause at 48 years of age. For twenty-one years she had no bloody vaginal discharge. On Dec. 14, 1896, she complained to me saying she had had menorrhagia for six months. At first, the bloody flow was only at intervals. At the time of her visit, it was continuous. Examination revealed about two-thirds of the cervix absent from carcinomatous ulceration. About one-third of the cervix remained uninvaded. Four days later, at the Presbyterian Hospital, I began to do a vaginal hysterectomy. A very careful examination under anesthesia revealed an invasion, as I interpreted it, of the right broad ligament with thickening and some degree of anchylosis of the uterus. All that was done was to curette very thoroughly and burn with the Paquelin cautery. A cavity was left fully two-thirds the size of an ordinary hen's egg. Into this I placed a piece of the carbid of calcium the size of the last joint of my little finger. I packed a large amount of idoform gauze against the piece of carbid of calcium and filled the vagina with gauze. In a week, after leaving the first piece of carbid of calcium in four days, I repeated the treatment with this agent, leaving it in three days. After each treatment, upon the removal of the gauze, the wound was free from necrotic debris, hemorrhage and odor. The cavity left by the curetting was beginning to contract very rapidly. After the removal of each iodoform gauze packing, naught remained but sand. The third treatment was made ten days later with the same result, namely, the utter absence of hemorrhage, discharge of necrotic debris, odor, and the contracting of the cavity. These treatments were continued regularly till well along into May, 1897. The cavity produced by the curetting had entirely disappeared, the thickening in the right broad ligament had disappeared, and there had been no discharge nor hemorrhage.

I did not see the patient again until July 30, 1897. She was still without discharge or hemorrhage. I saw her again the first week in October, 1897, with exactly the same condition. I did not see her again until May, 1898. In the meantime, she had been remarkably well and strong, performing her accustomed duties that she had been used to for a quarter of a century. Her seventieth birthday was in January of this year. At her last visit in May, she informed me that she was having an occasional bloody, grumous discharge from the vagina, coming with a sort of gush as though the pent-up fluid, about a drachm in amount, was suddenly released. She said it had an odor like old fish, not like cancer. This discharge had been going on at intervals for a few days for about a month.

I am now waiting developments in her case. I do not pronounce the verdict in her case till at least two years have passed from the date of her operation. The vaginal examination, at her last visit, revealed exactly the condition of things that existed one year ago. The vault of the vagina was drawn together like the apex of a cone with an opening up through it, leading to what I take to be the remnant of the uterus. Not a particle of solution of continuity was visible.

I think the claim can be made that no other line of treatment known at the present time, would make a patient so comfortable and entirely free from the usual horrors of cancer for a space of a year and a half, as has been used upon this woman. While I make no pretense of calling this case one of cure of cancer of the uterus, yet I do claim for it what I have just mentioned.

Case 2.—Patient aged 53 years, had passed the climacteric seven years. The cervix was entirely absent through carcinomatous ulceration, which had left the body of the uterus a simple shell. She had had hemorrhages for five months before I saw her. She was emaciating rapidly and losing strength, and was generally septic. Her face presented the cancerous cachexia. After curetting away the necrotic debris, on July 30, 1897, naught was left of the uterus but its cortex. Treatment was precisely the same as in case No. 1. Similar results followed. After about five months the cavity of the ulceration had entirely disappeared by contraction. In February, 1898, she became very ill with a severe chill and pelvic pains. Relief came slowly under opiates and hot fomentations, and on the eleventh day an abscess suddenly discharged through the small opening in the vault of the vagina. She was up and around in a few days. Since then she has, to all appearances, fully regained her strength and color and has gained flesh. In the early part of May, of this year, examination revealed a total absence of any vaginal solution continuity. Nothing but pink healthy mucous membrane is visible. Since the beginning of treatment in July, 1897, there has been neither discharge, odor, nor hemorrhage. She is performing her customary duties just as she did eighteen months ago.

I have several other patients under observation who are receiving the carbid of calcium treatment. They are in varying stages of progress. No conclusions can yet be drawn from them. Concerning each one the remark may be made that they are free from discharge, hemorrhage and odor, and that the cavity is decreasing in size. Till the best way was learned to treat them, I did not always succeed in abolishing the odor.

As to the *modus medendi* of the carbid of calcium, I have no opinion. Bacteriologically, a series of experiments was made, both with the carbid of calcium and with acetylene gas, on several pathogenic bacteria, under the direction of Professor Hektoen, in the laboratory of Rush Medical College, with absolutely negative results. In a few cases an erysipela-

tous redness of the sound mucous membrane seemed to follow the use of the carbid, which would suggest that it resulted from an escharotic action of the acetylene gas. Whether the acetylene gas destroys the cancer cell by annihilative action, or by chemically changing it, remains to be seen. One thing seems to be certain, and that is that the carbid of calcium at least postpones death and makes carcinoma patients vastly more comfortable while they do live, than any treatment known to the writer.

31 Washington St.

CHRONIC PHLEBITIS OF THE SAPHENOUS VEINS; SAPHENECTOMY.

BY E. VIKO, M.D.

PARK CITY, UTAH.

The pathologic condition of chronic phlebitis is a sclerosis of the veins, similar to atheromatous changes in the arteries; the veins become cord-like All the coats of the veins may be thickened and indurated, or the external coat only may be affected. In chronic phlebitis of the saphenous veins of the leg, the tissues around the veins are also swollen, often several times their natural size. Varices of the adjacent branches sometimes occur. In cases of long standing, eczema and ulcerated patches affect the skin, which becomes hard, thick and glazed. Severe pain, especially on standing or walking, is complained of.

Medicinal treatment of chronic phlebitis of the saphenous veins is very unsatisfactory. Drugs may ameliorate the eczema, pain and swelling to a certain extent, but this is only temporary.

Surgery promises better results. Lea recommends tying of the veins. The most rational method seems to be the removal of the veins. They have lost their function and act only as an irritant. No surgery to which I have access recommends removal of the saphenous veins for chronic phlebitis; but in view of the fact that their removal for varices effects the surest and speediest cure, I decided in one case to remove the internal saphenous vein for chronic phlebitis, with the happiest results.

Mrs. F., age 55 years, had been suffering for fourteen years with chronic phlebitis of the internal saphenous vein of the left leg. The limb was greatly swollen and walking or standing occasioned severe pains A good part of the time she could not obtain the necessary sleep on account of the pain. The skin of the leg was covered with an intractable eczema. She had for several years used a variety of drugs, internally and externally, with very little result. I suggested the removal of the vein, and on Feb. 28, 1898, I cut down on the vein in front of the internal malleolus; it was considered easier to find the vein there than higher up on account of the swelling. The vein felt and looked like a tendon. The only way by which I could tell whether it was the vein or not was by pricking it. The tissues over the vein were then laid open to about an inch above the knee, where the vein seemed to be healthy. The swollen and indurated tissues over the vein were in most places about an inch and a half in thickness. The vein was tied in two places above the knee with No. 2 formalinized catgut and was severed between the ligatures. As the vein was dissected out downward, branches were tied with the same material. It was finally tied near the internal malleolus and removed. I was careful not to injure the internal saphenous nerve. The wound was closed with No. 2 formalinized catgut and dressed with aseptic gauze and cotton. There was no rise of temperature at any time except on the second day, when the thermometer registered 99.5 degrees. The wound healed by primary union. All the swelling, induration and eczema have left the leg and she is now free from pain, the first time in fourteen years. Walking or standing does not cause any pain or swelling in the limb.

I have examined several surgical works, even of recent date, and find no mention of removal of the internal saphenous vein for chronic phlebitis.

These cases are frequently met with and the old treatment recommended is anything but satisfactory, while saphenectomy seems to be a sure and speedy remedy.

In my experience in varices of the internal saphenous vein removal is better than Phelps' operation.

SOCIETY PROCEEDINGS.

Delaware State Medical Society.

Meeting held in Wilmington, Del., June 14, 1898.

The meeting was opened by the President, Dr. P. W. TOMLINSON of Wilmington, who delivered an address entitled,

THE INTERESTS, OBJECTS AND BUSINESS OF OUR SOCIETY.

After commenting on the fact that the charter of this Society was only thirteen years younger than the Declaration of Independence he referred to some of the reasons why medical men did not take more interest in their annual medical meetings. He urged all to make known by writing and talking whatever new observations they may make of interest to medical men and considered a medical society the best means of conveyance for this information. He then dwelt at great length on the purposes of State medical societies in general and quoted fully from a number of letters received from other States, as to the results obtained by these societies in elevating the profession and killing quackery.

Dr. WILLARD SPRINGER read a paper entitled

SHORT HISTORY OF 1800 OBSTETRIC CASES.

The author divided this subject into eighteen groups of 100 each and mentioned one or two interesting cases in each group. He said concerning his management of cases: "If the case is an ordinary one and the labor well advanced and likely to be over soon after I first see it, I use the ordinary precaution of thoroughly washing my hands in hot water, but if the case is likely to be prolonged and to require many digital examinations or perhaps operative interference I use a bichlorid solution for my hands, carbolized vaselin as a lubricant and a solution of creolin for my instruments. Of course I occasionally have a case of septic infection and then, when the temperature is high and the lochia offensive, I use an intra-uterine douche of a mild bichlorid solution, 1 to 4000. Last winter I saw a case in another physician's practice in which the temperature was above 106 degrees just before the douche was given. The next morning it was down to 103 degrees and never went so high again, but the woman made a slow recovery on account of an attack of puerperal mania. I have great confidence in antiseptic and aseptic precautions in operations of all kinds, but I do not see that I have any fewer deaths in my obstetric practice now than I did in the early years when such precautions were unknown.

Dr. JOHN PALMER of Wilmington, gave the details of a case briefly referred to by Dr. Springer, in which the instruments were applied for five or six hours and the brain of the child squeezed out of the head before it was delivered, the mother making a good recovery.

Dr. JOSEPHINE WHITE asked how often Dr. Springer had administered anesthetics in the first stage of labor in his 1800 cases and in how many cases the temperature went above normal. She also commented on the indifference displayed by the better and upper middle classes toward absolute cleanliness in obstetric work and did not believe that the possibility of postpartem hemorrhage was a contra-indication to the administration of an anesthetic.

Dr. W. H. HANCKER of Farnhurst, Del., detailed a case of delirium following septicemia in which the emptying of the uterus was followed by death in two days.

Dr. H. J. STUBBS of Wilmington, inquired how often the author had used anesthesia in his large experience and also how soon he would advise curetting.

Dr. JONES believed that the sooner the uterus is emptied the better so as to prevent the absorption of germs. He advised that great care be taken in performing the operation, not to bruise any more surface than was absolutely necessary as these abrasions all acted as avenues for the absorption of septic material. For the purpose of sterilizing the instruments as well as washing out the uterus he strongly recommended a solution of lysol, for the latter purpose using a strength of 1 per cent.

Dr. SPRINGER closed by stating that he gave anesthetics whenever he deemed it necessary, considering each case a law unto itself. He admitted employing them more frequently of late years for three reasons: 1. That the method is more common than it used to be; 2, the different class of people composing his practice of late years, and 3, because people are becoming more educated to the use of anesthesia. He believed that frequently anesthetics prolonged labor and made the patient feel worse afterward and reported having known cases where it had been declined after the first administration. Although occasionally using ether his preference was for chloroform, but he had never found it necessary to use either in the first stage of labor. Referring to the question of douching he stated that he did not make a practice of doing so before labor and not even after labor if it had been a natural one without many digital examinations and without the use of forceps. When douching became necessary he preferred to use bichlorid 1 to 3000, always washing this out with a boric acid solution.

As to the removal of the placenta the author's method after cutting the cord is to place one hand upon the abdomen and with the other use slight traction on the cord. He did not think that breaking the cord was a serious matter, but rather thought it was good for it to bleed somewhat. In his opinion, when difficulty is experienced in removing the placenta, it is due to the fact that the whole bulk comes down right over the os and renders it difficult to compress it sufficiently to pull it through.

Dr. E. S. DWIGHT of Smyrna, Del., read a paper, entitled

POST-PARTUM HEMORRHAGE WITH UTERINE CONTRACTION.

After briefly describing the usual termination of a normal labor he referred to the premonitory symptoms of post-partum hemorrhage and to the sources from which this hemorrhage may come, mentioning among others, laceration of the perineum due to the passage of the head or more probably the birth of the posterior shoulder, a wound of one or other vestibular bulb, a tear of the vaginal wall, or a laceration of the cervix with the tearing of an arterial branch. He then gave details of four cases of post-partum hemorrhage all of which he had treated successfully by the applications of tampons. He referred briefly to other more recent and more scientific methods but pointed out the great difficulty of their application in a country practice, especially at night time.

Dr. CHARLES P. NOBLE of Philadelphia believed that the hemorrhage in most of these cases came from the vestibule, particularly when the baby had been delivered with forceps. He agreed with the author of the paper that the method of treating these hemorrhages must depend upon the facilities and experience of the individual in attendance, but strongly advised suturing whenever possible. Among other objections to the emergency tampon he mentioned that they were a great source of infection.

AFTERNOON SESSION.

Dr. BRIGGS reported a case of carcinoma in a six weeks pregnant uterus and showed the specimen removed with the fetus *in situ*, surrounded by a miniature bag of waters.

Dr. FRANK SPRINGER read a paper entitled

A CASE OF CAESAREAN SECTION.

The case occurred in a colored woman, aged 25 years, forty-seven inches high, with a small contracted pelvis and very much deformed lower extremities, that is to say, a marked case of rickets. The patient had been in labor seven days when first seen, and the pelvic diameter was so small that it was impossible to deliver her or even save her life except by performing laparotomy. This was done through an incision extending from the umbilicus to within two inches of the pubis, and a living female child was removed. The wound of the uterus was closed with catgut ligatures, while the abdominal wound was brought together by silk ligatures. The patient made an uneventful recovery, the wound being dressed once a day, the vagina douched twice a day, and turpentine and quinin being given for a few days. Four weeks from the time of the operation the patient washed her child, which, however, died shortly after the mother left the hospital.

Dr. CHARLES P. NOBLE of Philadelphia believed that Cæsarean section was no more serious than any other abdominal operation if done at the right time, in the proper way, by a competent person and in suitable cases, and mentioned that the average mortality in Germany was scarcely more than 5 per cent. He referred to the fact that Sanger had done twenty-five of these operations without a death, Olshausen twenty-seven with two deaths, and Leopold fifty with one death, while the percentage of mortality in the United States is 40 per cent., principally due to the fact that the operation is badly done and is rarely performed except as a last resort. He also partially accounted for this mortality by stating that the profession in this country neglects to study the cases beforehand sufficiently to know when to interfere. He referred to the recent article by Dr. Reynold of Boston, reporting twenty-seven of these operations done by surgeons in the Boston Lying-in Hospital without a death, thus illustrating that just as good results can be gotten here as abroad if the cases are properly studied. He believed if these cases were brought to the surgeon sooner so that the operation could be done at the right time, and if physicians would learn to study more closely cases of pelvic deformity, the mortality would be brought down where it belongs.

Dr. H. M. THOMPSON of Wilmington, read a paper entitled

OBSERVATIONS IN GYNECOLOGY DURING FOUR YEARS' SERVICE AT THE DELAWARE HOSPITAL.

He stated that more than 40 per cent. of the cases coming to the Dispensary complained either of simple or specific inflammation of the uterus or pelvic organs, the remainder being made up of displacements, lacerations, neoplasms, etc. In taking up the question of the advisability of making vaginal examinations of young girls the author hoped that the rule of every conscientious physician would be never to do so unless the history of the case indicated the definite existence of local disease. Chronic metritis was stated to be complained of by ten out of every fifteen women who applied to the dispensaries for relief, and the causes for this condition were inflammatory and non-inflammatory. Although the prognosis of these cases is often hopeless, yet at times much relief has been afforded by treatment, which was divided into medical and surgical, and the medical believed to be more valuable, consisting of hot vaginal douches and tampons, with rest and tonics combined at times with vaginal irrigation. While not speaking very strongly in favor of the curette he reported having obtained good results from this method in some cases. Intra-uterine medication was recommended in conjunction with the hot douches and tampons in suitable cases. Operative interference was referred to, but conservatism was advised in this direction. The paper closed with the histories of a few of the cases which illustrated points referred to in the paper.

Dr. H. J. STUBBS of Wilmington read a paper entitled

ABUSE OF CHARITY.

In referring to the growth of this abuse the author said: "It is not only an injustice to the older men, but a crying shame to the younger, that they are graduated by the hundreds from the various medical colleges with the just expectation of remuneration, and on the day they start practice they find the patients, they should expect, going to, and being treated by, the colleges from which they graduated."

The great difficulty was pointed out of ascertaining as to the rights of each individual to ask free medical advice at a hospital, and the results of such methods of treatment on the profession at large. Two methods were suggested to improve this condition: 1, that the family physician, when sending a patient to a hospital, should let the hospital physician or surgeon know positively of the financial position of the patient, and 2, the hospital physician or surgeon should be extremely careful to ascertain the circumstances of those that come without recommendation. Quoting Dr. Charles B. Burnett of Philadelphia, it was stated "last of all, and not least, the improper bestowal of medical charity pauperizes the recipients, the number of whom is now so large as to practically pauperize a large percentage of the community; . . . . . medical charity may be abused by the giver as well as by the receiver." Also quoting Dr. Frederick C. Shattuck of Boston: "medical charity in hospital dispensaries should be freely extended to those who require it and denied to those who do not."

Dr. JUDSON DALAND of Philadelphia stated that the average dispensary patient was inclined to view the advice received rather as something they could compel the physician to give than as an act of charity, and urged the necessity of a uniform course of action by all physicians. He attached very little importance to the truth of the average patient's remark that they could not afford to pay for medical advice, and re-

ferred to a method practiced by one institution in Philadelphia of sending people to visit the homes of patients and ascertain the exact state of affairs.

Dr. W. S. HAINES read a paper entitled

BURN OF SCALP WITH LOSS OF CALVARIUM, FOLLOWED BY RECOVERY.

The case occurred in a boy aged seven months, who was thrown into the fire-place by a larger brother, his head coming in contact with the fire. The burned surface was greased with various remedies, and bromids and morphin were given to relieve the pain and spasm. The soft parts sloughed off and subsequently considerable of the bone came away, leaving the brain exposed. Skin-grafting was unsuccessful and for some years past the open space in the skull, measuring about two and a half by four inches, has merely been covered with absorbent cotton or soft muslin, smeared with zinc ointment. The patient is now six and a half years old, and is having slight convulsions once or twice a month, although he is large and active and his intellect unimpaired.

Dr. J. A. ELLEGOOD read a paper on "Foreign Bodies in the Eye," and mentioned various methods for their removal.

The following officers were elected for the ensuing year: President, Robert Ellegood of Kent Co.; first vice-president, Dr. Robinson; second vice-president, W. H. Hancker of Farnhurst; secretary, Frank T. Belville of Delaware City; assistant secretary, John Palmer of Wilmington; treasurer, Wm. C. Pierce of Wilmington.

The next place of meeting will be Wilmington, at a date to be named later.

Minnesota State Medical Society.

Thirtieth Annual Meeting, St. Paul, June 15, 16 and 17, 1898.

FIRST DAY—MORNING SESSION.

The meeting was called to order by the President, JOHN F. FULTON.

Invocation, Rev. JOHN PAUL EGBERT of St. Paul.

The roll call and reading of minutes was dispensed with.

The report of the Treasurer, R. J. HILL, showed a balance in the treasury, after all expenses had been paid, of $667.15. The report was adopted.

The Executive committee reported that all members of the society were invited by the Ramsey County Medical Society to attend a banquet at the Merchants Hotel on Thursday evening.

The Secretary read a communication from the chairman of the Rush Monument Committee, requesting that some action be taken in regard to raising funds for the Rush monument; laid on the table until following day.

The subject of the President's address was

IMPROVEMENTS IN MODERN METHODS OF TEACHING.

He believes medical men should take great interest in modern methods of instruction; that antique methods of set lectures have happily given away to more modern methods of demonstration; that this great progress has practically wiped out all schools, leaving but one school, viz., medical science. He said that while we have in a few States, notably New York, two societies, measures have been taken to correct this and leave but one society in each State, and that one united for the best and highest good of the profession. He then dealt with the history of medical teaching and said, all teaching should have for its highest aim the benefit of humanity. He did not wish to underrate or ignore theoretic teaching, but thought theoretic should be subservient to practical, and that the most important of all teaching is the ability to make correct diagnoses. One of the greatest advances in this direction is in the making of accurate records. This has been favored very much by the use of the microscope and improvements in chemic analysis. Anyone to be successful must be accurate, for inaccurate work is always unreliable and worthless. A source of congratulation is that in many States examinations are now protected by the strong arm of the law and nearly everywhere are required to be thorough, searching and based upon a thorough preliminary education. This is as it should be, for it is undesirable to have a doctor of indifferent general attainments. The doctor's education shoud be broad and consist of much general information outside of medicine, for anyone who is only educated in one line becomes narrow even in the subject in which he is supposed to be best informed.

Adjournment was then taken until 3 P.M.

FIRST DAY—AFTERNOON SESSION.

In the Section on Practice of Medicine Dr. GENTLES of Chicago presented a paper on

TREATMENT OF PNEUMONIA BY COLD.

He said the use of the cold bath had been given up on account of the danger of shock and syncope. The gradual cold bath had also been abandoned on account of requiring absolute assistance, as the patient must not make any effort. He advocated the use of ice bags locally, filled first with ice water and later by chipped ice. They should be light and thin, so as to be easily applied and well borne. He claimed the red corpuscles would be increased by the application of cold. In delirium, cold sponging would reduce the temperature. A part of the body only should be exposed at one time and the part well rubbed. Cold in pneumonia must not be applied too suddenly.

Dr. HUNTER said we might as well admit we had no special treatment for pneumonia. He had not seen cases modified much by treatment and, on the other hand, had seen cases get well almost in spite of treatment. The most we can do is to keep up the patient's strength until the disease runs its course. He has used digitalis, but does not believe it to be a specific or an abortant, and he thinks we have no remedy equal to cold, but it should not be used for the purpose of shock and not be continuous.

Dr. ABBOTT said that we have a localized inflammation in pneumonia, very unlike typhoid or similar fevers. He knows of no remedy equal to cold, but he uses Leiter's coil in preference to ice bags, having found that ice bags would get full of air and not lie smoothly on the surface. If used they must be kept free from air, a very difficult thing to do. He would keep up cold continuously.

Dr. ANDREWS thought the danger was not from high temperature and concluded the cold treatment was irrational. He believes the danger is in the temperature going below normal, and does not believe in the use of cold.

Dr. THOMAS thought the pyrexia was the result of reaction rather than toxin.

Dr. GENTLES, in conclusion, said that bad results depended rather on the amount of excretion than on toxemia.

Dr. RAMSEY of St. Paul then presented a supposed case of

MYXEDEMA.

The patient was a German aged 44 years and mother of ten children, the youngest 3 years old. She is now in the menopause; five years ago began to grow fleshy and weak mentally and physically; has pain in right shoulder; feels tired, sleepy, nervous and apprehensive; perspires a little; urinates without control and frequently. The urine is normal in every respect. Temperature normal. There is a deposit over the entire body; lips thick, hands and ankles enlarged but no pitting on pressure; skin thickened; eyes expressionless; hair falling out; has been taking 5 grains of thyroid extract three times a day for three weeks with no improvement. The patient was examined by many of those present and much interest manifested.

Dr. CRAFTS presented a paper on

MEDICAL EDUCATION.

He reviewed the advances of the last twenty years and expressed great satisfaction at the higher degree attained by the medical graduate of today over former times. He thought the working of the law in many cases unfair, *e. g.*, when a man who had perfectly qualified himself was not allowed to write a prescription until he had a certificate from the State Board, while a quack could advertise and practice under the very eyes of the officers with perfect impunity and safety.

Dr. SWEENY, in discussion, thought these cases should be prosecuted by the local doctors, and stated that the Board of Examiners had no power to prosecute.

The general trend of the discussion seemed to be in the line of a national control of medical practice and qualifications and that after we had a health officer in the Cabinet, a uniform management of these things would be an easy step.

SECOND DAY—MORNING SESSION.

Dr. WALLING presented a report on "Antitoxin in Diphtheria." The report was accepted and the committee discharged.

His Excellency, DAVID M. CLOUGH, governor of Minnesota, and Mayor KEIFER of St. Paul were introduced and made brief addresses.

The following were admitted to membership in the Society: H. H. Witherstine, W. A. Dennis, W. A. Darling, A. F. Strickler, U. G. Williams, Henry Cotton, Chester M. Conlan, R. V. Earl, C. W. Moore, R. J. Sewall, Joseph A. Smeadlie, Charles F. Dewey, M. H. Reynolds, R. R. Stover, C. A. Smith, C. S. Reimstead, J. R. Pederson, F. A. Knights, G. E. Sinkler, G. J. Tweedy, Charles Genuo, A. S. Flemming, T. E. W. V. Appleby, C. P. Robbins, Ralph Peters, E. E. Harrison, C. D. Huntington, C. P. Robbins and A. F. Munroe.

Prof. John V. Shoemaker of Philadelphia was, by unani-

mous vote, invited to deliver an address at the next annual meeting.

In the Section on Practice of Medicine Dr. WALLING presented a report of two cases of appendicitis treated by calomel and high injections, and Dr. HATCH read a paper on "Appendicitis from the Standpoint of the General Practitioner."

The general consensus of opinion in the papers and the discussion which followed favored an early operation where there was no general glandular infection and when the surroundings would warrant opening the abdominal cavity. Other papers in this Section were: "The Value of the Diazo Reaction in the Early Diagnosis of Typhoid Fever," "Widal's Test," "Lead Poisoning from an Unusual Source" and "Induced Abortion, Sepsis Anurea During Eleven Days; Death."

SECOND DAY—AFTERNOON SESSION.

Dr. JOHN T. ROGERS presented a paper on

CONTUSIONS OF THE ABDOMEN AND THEIR SURGICAL TREATMENT.

He said contusions resulted from kicks, blows and being caught between two solid substances as by logs, etc. There might be death without visible injury to the walls or, in some cases, any appreciable injury to abdominal contents. The chief symptoms were pallor, lividity, vomiting, tympanites. A contusion might injure any of the contents of the abdomen. The pulse and temperature could not be depended on for diagnosis, but were useful in prognosis. A small hard pulse and subnormal temperature being indications of fatality. Where abdominal contents are ruptured 96 per cent. of the cases die. He favors an early operation and believes it better to open the abdomen and find nothing wrong than to wait and take many chances. Rupture of the kidney is not as serious as rupture of other organs, since it may be removed and the function performed by the other.

Dr. MAYO has seen many cases and believes the greatest trouble is that they never recover from the shock and thus render an operation nearly impossible. He saw one boy who was run over by a wagon, who afterward developed ascites; a quantity of bile-colored fluid was drawn off and he recovered.

Prof. J. B. MURPHY of Chicago said the time for operation was important, but could not be given with exactness. When there is pain without cessation and nausea, it is best to operate. Inflammations following this character of injuries are much more fatal than other infectious inflammations, but he could not tell why.

Dr. MCLAREN favors an early exploration to determine the nature of the injury. He reported a case of rupture of the gall bladder by contusion. The inflammation developed slowly and death resulted in three days. The postmortem showed the patient had a large gall bladder with numerous gall stones and he believes that if an operation had been made early the chances would have been favorable.

Dr. MAYO presented a paper on "Abscess of the Lung." Dr. MURPHY of Chicago in discussing this paper gave his ideas of treatment of cavities in the lung by rest procured by filling the pleural cavity with gas, as advanced at the late meeting of the AMERICAN MEDICAL ASSOCIATION at Denver.

Many were the patriotic and witty responses to the toasts at the banquet tendered by the Ramsey County Medical Society in the evening.

The response to "Remember the Maine," by the president of the Society, Dr. JOHN F. FULTON, was particularly apt and patriotic.

D. PARK RITCHIE exceeded himself in an overflow of dry humor in his response to "The Fallacious Doctrine of Malthus."

THIRD DAY—MORNING SESSION.

The next meeting of the Society is to be held at Minneapolis, June 21, 1899.

Election of officers resulted in: President, F. A. Dunsmoor; first vice-president, A. T. Couley; second vice-president, Mary Whetstone; third vice president, John Williams; secretary, William Davis; treasurer, R. J. Hill.

THIRD DAY—AFTERNOON SESSION.

The Section on Obstetrics and Diseases of Children convened at 2 P.M.

Dr. W. T. ADAMS, chairman of the Section, presented a paper on "Injuries to the Cervix Uteri." He thinks one more cause for laceration should be added to those usually enumerated by authors, and that is, that the anterior segment being unsupported by the walls of the vagina, is often pushed forward to a great degree, rendering a lateral rupture much more liable.

Dr. R. E. CUTTS, in a paper on

CAUSES OF MATERNAL DYSTOCIA,

Thought two causes were too much forward inclination of the plane of the superior strait and lordosis of lumbar vertebra, either one throwing much of the expulsive force on the pubes. He also deplored the meagerness of clinical instruction in that the student is merely permitted to see and attend cases without a special instructor.

Dr. ERDMAN thought that whenever possible an examination should be made previous to labor and all probable or possible causes of dystocia should be known. He says students are not allowed to do this as much as they should be.

S. W. RAUSON of Dodge Center, in a paper on

CARE OF PREMATURE AND FEEBLE INFANTS

Said, too little was done to save the great army of such children born annually. Many may be saved by proper feeding and protection from drafts. The latter may be accomplished in absence of more perfect apparatus by placing in cotton near a coal stove or over a lamp where a constant temperature may be maintained. The temperature must always be indicated by a thermometer at the head and be at first from 99 to 100 degrees. The best food is mother's milk, next a wet nurse, and next cow's milk properly diluted and prepared.

Dr. COOL suggested that the reason a wet nurse was not the best was because the milk was not properly constituted; the colostrum necessary to act on the bowels of the child is not present.

Dr. WHETSTONE said the first bath should always be omitted and the child oiled instead; if this were always done she thought the mortality would be greatly diminished.

The Denver and Arapahoe Medical Society.

Meeting held at Denver, Colo., April 25, 1898.

POTT'S DISEASE

Was the subject of the symposium. Dr. J. T. ESKRIDGE opened the discussion by reading a paper on the diagnosis of Caries of the Spine. He said: I regard what is commonly known as caries of the spine, or Pott's disease, as a tuberculous inflammation of the various structures that compose the spinal column, and shall endeavor to differentiate it from numerous affections of these structures that are, in all probability, non-tuberculous in their nature.

Until recently an account of caries of the spine could be found only in works devoted to surgical subjects. So far as my information goes, Gowers is one of the first writers on the diseases of the nervous system, to devote in his work a lengthy discussion of this subject. The symptoms of the diseases of the spine should be as well understood by the physician as the surgeon, because a failure to examine for these, and to appreciate their importance in an early stage of the disease, may result in irreparable damage before the surgeon is consulted.

Causes.—Caries of the spine, in proportion to the number of inhabitants, is more frequent in Colorado than in the eastern and southern portions of this country. There are two reasons for the comparative frequency of the disease among us. One is that a larger proportion of our population follow dangerous occupations, especially mining, in which the laborer is more subjected to injuries of the spine than are those who live in agricultural and manufacturing districts. The second is, that a large number of those who reside in Colorado are suffering from chronic tuberculosis. Tuberculosis and traumatism to the spine are the two principal causes that result in caries of the bones of the spinal column. In regard to sex, the cases which I observed in adults in Colorado show that males suffer about four times more frequently than females. Before the 15th year my cases show a slight preponderance of the disease in the female. Caries of the spine is common in childhood after the third year, and next in young adults; but in Colorado we find an exception to this rule, as adults from the 20th to the 45th year are by far the most frequent sufferers. It does not seem to me that children in Colorado are afflicted more frequently with the disease than what is found in eastern portions of the country, this too, in the face of the fact that a larger proportion of the children in Colorado have tuberculous parents. Old age is not exempt from the disease. I have met with it in a woman in her 65th year, and in a man aged 67. The disease has occurred as early as in the fifteenth month.

Caries may follow injuries to the back in which the bones have not been directly injured, but inflammation may extend to the periosteum and bone substance from torn and inflamed ligaments. Caries of the spine following traumatism that has not fractured the bones may come on several months after the receipt of the injury, and in some instances after all symptoms of the injury have passed away. Syphilis plays an uncertain role in the causation of caries of the spine. Adjacent inflam-

mation, abscess, and blood poisoning may give rise to disease of the vertebræ.

Location.—The dorsal, cervical and lumbar regions of the spine, in order named, are most frequently the seat of caries.

The *symptoms* of caries of the spine may be divided into general and local. The former are most commonly seen in children. They consist of an appearance of declining health. The child is pale, anemic, feeble, the appetite poor and the bowels irregular. Flesh is lost, strength is lessened and the gait resembles very much that of a feeble, tottering old man. The step is short, slow, the foot is carefully placed on the ground, the ball of the foot bearing most of the weight of the body; the legs are slightly bent at the knees, the body is thrown forward at the hips, and while the spine is slightly bent forward at the cervico-dorsal junction, the back of the head is thrown backward, and in consequence, the chin projects well forward. The gait might be classed among the local symptoms of the disease. I have chosen to speak of it under the general, as it is only typically seen in children, and usually in those who present well-marked constitutional symptoms of impaired health.

Local symptoms.—These may, for the sake of convenience of study, be divided into bone, nerve-root and cord symptoms.

Bone symptoms.—Judging from my own experience, the earliest and most important symptoms of caries of the spine in the adult, and in many children, are localized pain, tenderness and muscular rigidity. The pain in the spine is felt at the affected part. I have never seen a case in which active caries affected two regions of the spine at the same time, and in consequence I have never met with a case in which there were two seats of pain in the spine from caries at the same time. In fact, when the pain has a long vertical extent, or when two regions of the spine are the seats of pain, the indications are against, rather than in favor of caries, or any other organic disease of the bones. The pain may be increased by jarring or rotating the spinal column, by quickly bending the spine backward or forward or from side to side, and especially by firm pressure over the diseased bones. It is among the earliest objective symptoms, and is probably the most constant. When the disease is situated in the most movable portion of the spine, as in the cervical region, movements of the spinal column, both voluntary and forced, are the most painful. The patient instinctively fixes the head in an abnormal position. Sometimes it may incline to one side so persistently as to simulate torticollis, but the sterno-cleido-mastoid muscle is tense on the side toward which the head is inclined, just the opposite of what we find in the latter disease. I have seen a few cases with apparently considerable thickening of the spines in the dorso-lumbar region following injuries to this portion of the spinal column. Marked deformity is often absent when the morbid process occurs in the cervical region until the disease has made considerable progress. A person, either a child or an adult, who can jump from a low chair down on the floor and light on his feet without experiencing considerable discomfort in the spine is probably not suffering from an inflammatory condition of the spine. An easier and safer test than the one just referred to, is to get the patient to jump from the floor and light on his heels. This will usually cause pain in the spine if caries is present. So far, I have met with only one case of unilateral caries of the spine in which the symptoms were distinctly unilateral for a period of several months.

Nerve-root symptoms.—Nerve-root symptoms may be divided into four classes: sensory, motor, reflex and trophic. The earliest of these, as a rule, are the sensory. When the disease is high up in the cervical region, the pain extends over the posterior portion of the head; in the cervico-dorsal, the arms suffer, and when the lumbo-sacral is the seat of the morbid process the pain may be felt along the course of the sciatic nerves. When the pains are first felt, the skin over the area to which the affected nerves are distributed is hyperesthetic, but later irregular areas of partial or complete anesthesia are present. Muscular rigidity from irritation of the nerve-roots is not an early symptom. The deep reflexes of the legs are probably not affected in caries of the upper two-thirds of the spinal column unless the cord is affected. I have seen a number of cases in which the plantar reflexes were greatly increased, and others in which they were normal or lessened before the disease had made much apparent progress. Trophic disturbances are seen only occasionally early in the course of caries of the spine. According to my experience, herpes zoster, occurring along the course of the irritated spinal nerves, is a very infrequent affection from bone disease.

Cord symptoms.—Are very frequent; they occur after the bone disease has made considerable progress. The mode of onset of cord symptoms varies greatly in different cases. They may come on slowly and require months or a year or more to reach their height. In a few cases complete paralysis, especially of the legs, has developed suddenly. One case under my care some years ago, one leg was almost completely paralyzed six months before the other was perceptibly affected. The cord symptoms are motor, sensory, ataxic, reflex and trophic. It is not uncommon to have almost complete muscular paralysis of the parts below the lesion with sensory phenomena intact. If the lesion is high up in the cervical region so that the arms are not involved by damage to the nerves that supply them, the legs may be paralyzed before the arms. When the bone disease is on the level of the origin of the nerves that supply the arms, the latter will be affected by paralysis and wasting before the legs exhibit much impairment of motion. In caries of the spine affecting the lumbar enlargement of the cord, facial paralysis, muscular wasting and other pronounced trophic disturbances, with abolition of the reflexes of the legs, will be found. I have in two such cases obtained ankle-clonus, although there was no vestige of the knee-jerks. I have seen several cases of caries of the spine that had been mistaken for locomotor ataxia on account of the marked degree of muscular inco-ordination, together with shooting pains present. Persistent loss of voluntary control over the sphincters of the bladder and bowel in caries of the cervical or upper three-fourths of the dorsal region indicate a severe lesion to the cord.

Diagnosis.—Pain in a limited region of the spinal column, increased often by extreme lateral, forward and backward flexions of the spine; rigidity of the muscles that fix the bones at the affected part of the spinal column; the presence of tuberculosis, the history of injury to the spine or of tuberculosis in the family; areas of hyperesthesia, anesthesia; muscular wasting in arms; rigidity or flaccidity of the muscles of the legs. When evidences of bone disease precede cord symptoms, a diagnosis of caries, with sequential nervous lesions, will rarely be wrong.

Primary pachymeningitis gives rise to nerve-root and cord symptoms similar to those following caries of the spine. The absence of the positive evidences of bone disease and the diffuse character of the nerve-root symptoms would be in favor of primary pachymeningitis. The absence of such causes of pachymeningitis as syphilis, alcoholism and repeated exposure to cold, is in favor of caries.

Progressive muscular atrophy. The irregular distribution of the muscular atrophy in caries, the severe jams along the course of the spinal nerves injured as they emerge through the diseased vertebræ, and the presence of areas of hyperesthesia or anesthesia, with perhaps local evidence of bone disease, such as pain and tenderness in a limited portion of the cervical spine and rigidity of the posterior cervical muscles, would serve to distinguish caries from progressive muscular atrophy.

Spinal irritation.—In spinal irritation there are usually two or more areas of considerable vertical extent of spinal tenderness. In spinal irritation deep pressure does not increase the pain over that produced by slight pressure. I am not prepared to accept Dr. Gibney's statement that "in Pott's disease, particularly in children, there is very rarely tenderness over the spinous processes." I can not recall a single case of caries in the early stage in the adult in which the spinous processes of the affected vertebræ were not somewhat sensitive to firm pressure and forcible lateral movements of the spine.

Hysteric paraplegia.—The presence of distinct evidence of bone disease in the vast majority of such cases, and the undeniable proof of an organic lesion of the cord, will be found if carefully searched for and should prevent such a mistake.

Sciatica.—When only one sciatic nerve is involved in caries beginning unilaterally, an error in diagnosis may occur. It can, as a rule, be prevented if it is remembered that in neuritis due to pressure the nerve below the seat of pressure, while it may be the seat of pain, is not tender until sufficient time has elapsed for descending neuritis to affect the peripheral portion of the nerve.

Torticollis.—A mistake in diagnosis may usually be prevented if it is remembered that in torticollis, the head is fixed by muscular contraction, and the face and head are turned to the side opposite that of the tense sterno-cleido-mastoid muscle, while in caries this muscle is tense on the side toward which the head is turned, this muscle being simply stretched on account of the fixation of the head from bone disease.

Neuralgia.—In all cases of supposed neuralgia of the fifth cranial nerves and of the spinal nerves, the spine should be carefully examined.

Syphilis.—I have never seen a case of disease of the spinal column in which I could, with any degree of confidence, make a diagnosis of syphilis, neither am I able to learn from the literature on the subject any reliable diagnostic symptoms, by the presence of which syphilitic lesion of the spinal column may be diagnosticated. We must remember, however, that it

is sometimes impossible to distinguish between a tubercular and syphilitic dactylitis. A patient, a colored woman, has been in the Arapahoe County Hospital for a period of about two and one-half years, whose whole dorsal region is arched forward, with shoulders and hips thrown backward. There has been no tenderness of spines, no positive evidence of disease of any of the vertebræ and no symptoms of spinal cord or nerve-root lesion. The deformity is gradual, not acute, and involves six or eight vertebræ. The muscles of almost the entire dorsal and lumbar regions appear to the touch nearly as hard as wood, and are not tender under firm pressure. Her condition does not appear nearly as desperate as it did at the time of her admission into the hospital. She made considerable improvement at one time under large doses of potassium iodid and inunctions of blue ointment.

Rheumatism.—If the rheumatism attacks the joints of the spine there is said to be no pain caused by jarring the spine, as in walking or by crowding the vertebræ on themselves in vertical pressure. I am inclined to think that this test of Ransom is unreliable. In case deformity of the spine takes place from rheumatism, the kyphosis involves several vertebræ and is less acute than in caries from tuberculosis.

Gonorrhea of the spine.—I have had no personal experience with gonorrhea of the spine. The most reliable points in the diagnosis are the presence or gonorrheal rheumatism in other portions of the body and great tenderness of the spine.

Typhoid spine.—I published some years ago a clinical lecture which I delivered at the Arapahoe County Hospital, on a case of tender and disabled spine following an attack of typhoid fever. I have seen two cases of this affection during the past two years, one of them at the expiration of eighteen months is scarcely well yet. The diagnostic points are, it comes on a short time after an attack of typhoid fever, is attended by great pain and tenderness of the spine, often of considerable vertical extent.

Infectious diseases.—Personally I have had no experience with disease of the spine following such infectious diseases as diphtheria, scarlet fever and measles. The apparent cause, the sudden onset, the acutely painful condition of the spine without deformity, the affection of several vertebræ and the rapid recovery, would distinguish this morbid condition from caries.

Paget's disease.—It usually occurs late in life and is attended by a stiffening of the spine which is not very painful, and an exaggeration of the normal curves of the spinal column.

Hydatids of the spine.—It is probable that a diagnosis could be made only after the character of the cyst was ascertained.

Non tuberculous traumatic inflammation of the spine.—It is probable that most of the inflammatory conditions of the bodies of the vertebræ, if they are not tuberculous at first, soon become so if the disease is not arrested.

Dr. S. A. Fisk said that his experience does not coincide with that of Dr. Eskridge. He has seen very little of tubercular bone disease in Colorado. He considers the idea that every bone disease is of tubercular origin to be a fallacy. It would be just as reasonable to say that every case of diarrhea in tubercular patients is of tubercular origin. He cited several cases which illustrated his standpoint. His treatment consists mainly in rest combined with fresh air and sunshine, a condition nowhere so ideally obtainable as in Colorado. He cited several cases of bone disease following typhoid fever, the affection having settled on the ribs, tibia, etc.

Dr. Packard discussed the mechanical treatment of Pott's disease. He said: It can safely be said that the results from medicinal treatment of Pott's disease in this country are generally superior to those obtained in any other country, and are largely due to the fact that the surgeon does not delegate to the instrument maker the adjustment and care of apparatus. Who would think of asking an instrument maker to adjust the splints in a case of fracture?

The results obtained vary according to the region of the spine involved. Caries in the cervical, lumbar and five lower dorsal give comparatively good results. It is the seven upper dorsal that give cause for anxiety.

The methods of mechanical treatment are limited to the jacket, the antero-posterior splint and the recumbent position. After having considered various methods of application, he concluded by saying: I want to emphasize the importance of continuing mechanical support for a long time after all the acute symptoms have disappeared, as the relief that follows efficient mechanical treatment is very great. Sometimes the friends of the patient are deceived by this and expect a rapid cure. There is also danger of the medical attendant becoming over-enthusiastic over the rapid improvement and consequently he may remove the support long before consolidation has taken place. Under these circumstances, a relapse is almost sure to follow.

PRACTICAL NOTES.

Ptosis Cured by Grafting the superior rectus on the tarsal cartilage, is reported by Motet of Angers; two cases.—*Progrès Méd.*, May 21.

The Endolascopic Sound is the name given by Remond and Noe to their instrument, presented at a late meeting of the Paris Académie de Médecine, which allows the insertion of the Crookes' tube into the cavities of the body, liquids, masses of muscle, etc., for diagraphy. Projections allowing for the known distortions complete the process and render the "views," mathematically correct.—*Bulletin*, May 10.

Skin Flaps retain their Vitality for weeks if kept in sterile ascites fluid as Ljunggren has demonstrated. He now reports a number of observations in which flaps six to nine days old were transplanted and healed into the tissues in the most perfect manner, with unmistakable evidences of practically unimpaired vitality.—*Deutsche Ztschrft f. Chir.*, xlvii, 6.

Specula of Glass and Celluloid.—C. H. Stratz of Haag uses a speculum made of glass with an open tube space running through it to convey cauterizing substances to the portio and uterus without contact with the hand or vagina. The tissues can also be examined through the glass. He also recommends his celluloid speculum for hot water irrigations. Water of 40 to 50 degrees C. can be used without pain and with surprisingly favorable results in parametritis.—*Munich Med. Woch.*, May 10.

Infection of the Thread by the Fingers during the operation is the chief cause of stitch suppurations, O. Bloch believes. He recommends disinfecting catgut with phenicated water, which swells and softens it, hardening it again in alcohol. The needle and thread are held with forceps while being threaded and the latter not touched with the fingers more than can be avoided, and never any part that is to be left in the tissues.—*Revue de Chir.*, May 10.

Improved Technique of Electric Treatment for Vomiting in Pregnancy.—The patient eats at the séance, and then as the nausea appears, a single large electrode is applied, fitted to the neck, the median space insulated with rubber, each active end covering 20 square centimeters, over the vagus, with the negative electrode on the epigastric region, 150 square centimeters in size. Ten minutes arrested the nausea and six daily séances abolished it completely in one case reported.—*Semaine Méd.*, May 25.

Angiotripsy: Hemotasis without Clamps or Ligatures.—Tuffier reports twenty-three vaginal hysterectomies all successfully performed with the assistance of the new angiotribe. The ablation of the uterus proceeds as usual, but instead of applying clamps to the broad ligaments they are seized between the jaws of the angiotribe and crushed, the instrument then removed. The hemostasis is perfect (*Semaine Méd.*, May 25) Doyen's similar instrument exerts a crushing force of 400 to 1200 kilograms, and, he states, renders all operations in which it is used, much shorter and more certain.

Laparo-Hysterectomy for Carcinoma Uteri should be reserved for cases in the early stages, as otherwise even this serious operation proves merely palliative, like vaginal hysterectomy. Jacobs has only had two patients survive over two years out of seventy on whom he performed vaginal hysterectomy, and Bouilly's ultimate results in 127 are equally unfavorable. He considers it scarcely more effective than amputation of the cervix, as it is impossible to attain all the affected tissues. Out of eleven on whom he performed laparo-hysterectomy all recovered but one, who succumbed to pneumonia shortly afterward, but three already show symptoms of a recurrence in three to five months.—*Semaine Méd.*, May 14.

"Abaissement" Method of Inguinal Herniotomy.—Reille recommends this method for small and medium hernias as simple and reliable, after an experience of seventy-two cases. After the hernial sac is out of the way, the external oblique is slit at the external inguinal ring so as to expose the edge of the internal and transverse oblique. The spermatic cord is drawn down and the pillars of the external and transverse oblique are sutured, leaving only space for the cord, to the lower wall of the inguinal canal, and the slit in the external oblique is then sutured.—*Cbl. f. Chir.*, May 14.

In Operating Prolapsus, Saenger and Hegar both observe the following points: 1, very extensive denuded surfaces; 2, very exact, close stitches; 3, no catgut; Saenger uses fine silk and Hegar silver wire; 4, excisio colli alta the sole operation on the uterus, as they consider ventrofixation entirely unnecessary, except with total prolapsus; 5, extreme care in details and time devoted to the operation, Saenger with all his dexterity, requiring three hours. The most scrupulous asepsis is a matter of course, and the patients are only anesthetized at the close, during the work on the peritoneum.—*Deutsche Med. Woch.*, May 19.

Osteomalacia.—Latzko has observed 120 cases and notes the diagnostic signs of sensitiveness to pressure of certain points of the skeleton, especially the pelvis and ribs, isolated paresia of the iliac psoas, contractions of the adducting muscles with impossibility to abduct the limbs, also exaggeration of the rotulian reflexes and absence of sensory disturbances. He has found phosphorus fully effective as castration in over 100 cases, and ascribes the failures of others with it to the fact that the doses were too small. He commences with one teaspoon a day of a solution of 6 centigrams of phosphorus in 100 grams cod-liver oil, increasing to eight or ten. The patient thus receives 4 to 6 milligrams of phosphorus a day. If there is no improvement in two or three months, the patient should be transferred to the hospital for better hygienic surroundings. If this also fails, then castration is indicated.—*Semaine Méd.*, May 14.

The Permanency of Cure after Ablation of Cancerous Tumors has acquired new interest since the publication of Schuchardt's case in which some of the probably affected glands, difficult of access during the laparotomy, were purposely left, to shorten the operation, although one of the neighboring glands examined by the microscope confirmed the diagnosis. The patient died some time after the operation and no cancerous glands were found at the necropsy. The question now is whether the laparotomy affected the cancer favorably as it does tuberculosis. A. Fraenkel thinks that permanent cures are more frequent than supposed, but Albert prefers the term "late relapses," observing that recurrences may develop as late as ten years afterward. Hochenegg states that out of 104 cancers of the rectum he has operated since 1887, forty-six are free from recurrences to date, one eleven years. A number of cases have been reported operated thirteen, eleven, eight and five years without recurrence. A recent discussion of the subject at Vienna concluded by urging operators to note whether the principle of "extensive regional ablation" is imperative in stomach, intestine, tongue and lip carcinoma, judged by the ultimate results, and what effect it has on remote metastases.

An Aseptic and Cosmetic Suture without a trace of the stitches is obtained by inserting the curved needle under the outer layer of the skin, first on one side and then on the other, and bringing it out at the extreme tip of the wound, fastening each end of the thread over a roll of gauze, after pulling it taut. This percutaneous suture ensures an absolute linear scar. To remove the thread pull hard on one end and cut it close to the skin. The rest is then easily pulled out at the other end, without carrying any germs from outside into the tissues. Each curved stitch should include a little larger space than the corresponding open space opposite.—*Münch. Med. Woch.*, May 24.

Permanent Drainage of Ascites is secured, by Prof. P. Fürbringer, by inserting the fenestrated end of a rubber tube fifty centimeters in length, inside a canula into the peritoneal cavity. The canula is then withdrawn and the tube fastened with a thread passing through the wall of the drain. While the fluid is draining out a small antiseptic dressing is applied around the point were it enters, and held with a circular bandage. When the fluid is evacuated the tube is closed with forceps where it emerges, the outer end rinsed with an antiseptic solution and then coiled and held in place with cords of tarletan. Whenever the ascitic fluid has collected again, the forceps are removed, the tube uncoiled and drainage re-established.—*Semaine Méd.*, May 25.

Chloroform Anesthesia.—Groube has observed 40,000 cases of chloroform anesthesia, from 1851 to 1896, with three deaths. Examination of the urine before and after anesthesia showed that the chloroform does not affect the kidneys except in cases that have previously been chloroformed several times. He considers physiologic salt solution by far the best stimulant for the heart, denouncing alcohol and other carbohydrates on account of their depressing action. Asphyxia was threatened in 5 per cent.; relieved by a few manipulations for artificial respiration after removing the mucus accumulations. Vomiting was observed in 20 per cent.; ice was given in obstinate cases; bouillon and coffee only subdue the vomiting when they are very cold or very hot. He considers morphin useless in connection with chloroform anesthesia.—*Presse Méd.*, May 21.

Anchylostomiasis is frequent in the coal mines of Hungary. A physician at Brennberg reports 470 cases observed. He found santonin ineffectual, but ten grams of thymol a day resulted in the final expulsion of all traces of the parasite in four to six weeks. He usually administered extr. filic. mar. æth. in gelatin capsules, as much as fifteen grams in three hours, preceded by 0·4 gram calomel. Arsenic and iron for the pronounced anemia. The subjective disturbances were exhaustion, weakness below the knees, palpitations, dyspnea, buzzing in the ears, salivation, etc.—*Wien. klin. Woch.*, 1898, 19.

Ovarian Therapeutics.—Vigier has applied to ovarian substance the same process he has found so effective with thyroid tissue; after freeing the organ from all foreign substances, fibers, fat, etc., he mashes and mixes it with sodium bicarbonate and charcoal, which preserve it indefinitely without interfering with its therapeutic effect. Two to six capsules a day, each containing 0.20 gram have been found extremely effective in the troubles of the menopause.—*Gaz. Méd. de Liège*, May 19.

Arsenic Iodid in Scrofula has been found extremely effective by R. St. Philippe during the last three years in cases of chronic eczema, inflammation of the eyes, intestinal catarrh and other manifestations of "scrofula." In some cases the results were marvelous. Five to twenty drops a day of a 1 per cent. solution of arsenic iodid were administered, with no local treatment except rinsing with boiled water. The drug must be dissolved in cold water, and if symptoms of intolerance appear, suspended for a few days and resumed with smaller doses.—*Bull. de l'Acad. de Méd.*, April 19.

Prophylaxis of Movable Kidney. Keller considers pregnancy unfavorable to the development of this condition, but after delivery everything tends to produce it. He advises, as prophylactic measures, the wearing of a belt tighter above than below, remaining in bed at least three weeks, not sitting up before the seventeenth day, and resorting to the sound rather than allowing efforts during urination. A belt should be worn during pregnancy if the abdomen is very much stretched and at least six weeks after delivery. Pads are useless, but very thin women may be benefited by a bandage with spring plates. The effect of nephrorrhaphy is too often transient for it to be recommended. Nephrectomy is the last resource.—*Monatss. f. Geb. u. Gyn.*, 1898, January.

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SATURDAY, JULY 9, 1898.

THE PROGRESS OF ARMY MEDICAL ORGANIZATION.

During the past month the organization for field service of the medical department of the various regiments aggregated in the camps of instruction at Chickamauga Park, Georgia; Tampa and Jeffersonville, Florida, and Camp Alger near Washington, D. C., has been progressing on lines indicated by the surgeon-general and the chief surgeon of the army in the field. The latter officer, Colonel CHARLES R. GREENLEAF, Asistant Surgeon-General U. S. Army, made an estimate of the medical and hospital personnel of an army corps for the guidance of chief surgeons in the organization of their field hospitals and hospital corps companies. In this estimate an army corps was assumed to consist of 24 regiments of infantry, 3 light batteries of artillery and 1 regiment of cavalry organized in 3 divisions of 3 brigades each, and that to man this command medically there should be, in accordance with existing laws and orders, a total of 89 medical officers, 83 hospital stewards, 29 acting hospital stewards and 817 privates of the hospital corps. To organize for field service, each regiment of infantry would have assigned for service with it 1 medical officer, 1 hospital steward and 1 mounted orderly; the battalion of 3 light batteries of artillery 1 medical officer, 3 acting hospital stewards and 1 mounted orderly, and the regiment of cavalry 2 medical officers, 1 hospital steward and 2 mounted orderlies. For administrative purposes at headquarters of corps, divisions and brigades: At corps headquarters 2 medical officers, 2 mounted orderlies and 1 hospital steward; at the headquarters of each division 1 medical officer, 1 hospital steward and 1 mounted orderly, and at the headquarters of each brigade 1 medical officer and 1 mounted orderly. For each of four ambulance companies, one to serve with each division and one to be held as a reserve, 6 medical officers, 7 hospital stewards, 3 acting hospital stewards and 104 privates of the hospital corps; and for each of four field hospitals, of 200 beds each, one to serve with each division and one to be held in reserve, 6 medical officers, 6 hospital stewards, 3 acting hospital stewards and 90 privates of the hospital corps. The assignments of the medical force of the army corps would thus be:

	Medical officers.	Hospital stewards.	Acting hosp. stewards.	Privates of hosp. corps.
On duty with regiments, batteries, etc.	27	25	3	27
On staff or administrative service	14	4	. .	14
With ambulance companies	24	28	12	416
With field hospitals	24	24	12	360
Unassigned		2	2	
Total	89	83	29	817

The difficulties encountered in effecting this organization have been due to opposition on the part of regimental officers, medical and line, to the breaking up of the regimental hospital which they have been accustomed to regard as an essential part of the regimental constitution. Chief surgeons were handicapped also by the dislike of volunteer soldiers to offer themselves for transfer into the hospital corps of the regular army. A third difficulty was found in the changes taking place in the composition of divisions as one or more regiments were sent from one command to another, from Chickamauga, for instance, to Tampa. When the medical department of a division is well organized and its members familiar with their work it is a simple matter to detach with one or two regiments an appropriate share of medical and hospital supplies and to adjust the duties of the remaining officers and men to the new conditions; but occurring frequently in the progress of organization such changes retard the work and increase materially the labors of the medical officers in charge.

RED TAPE.

Officers of the Volunteer Army are prone to consider as needlessly strict and formal many of the requirements of Army Regulations, particularly those relating to reports, returns and other so-called paper-work, and to make use of the term, red-tape, as embodying their opinion of all such requirements and as accounting for and excusing any ignorance of the subject on the part of those who, like themselves, have volunteered for the intensely practical work of grim-visaged war. But no business can be managed successfully without attending to the accounts. Even the small affairs of the family circle involve a certain amount of orders, memoranda and book-keeping to house, feed and clothe the members of the family and have the various bills settled at the end of the month. The company is the military family; and if its head, the company commander, fail to keep proper account of the pay due his men, if he fail to

inform himself of the regulation methods of providing them with food, clothing, arms, equipments, etc., or to turn this information to practical account, his men will suffer, for, as in military life, it is expected that every one should know his duty and do it; there is no provision by which the men of a command can be cared for when its own commander fails to do so.

Medical officers are in a great measure relieved from duties of this kind. The number who have to care for soldiers of the hospital corps is very small. They are the officers in charge of hospitals and of hospital corps companies. Regimental medical officers have with them on field service only a hospital steward and a mounted orderly, and these men are attached to some company of the regiment for rations and are borne on the rolls and returns of the field hospital or ambulance company for muster, pay and clothing. Regimental medical officers have been relieved from cares of this kind that they may be able to devote all their attention to the keeping of accurate medical records of their regiments. In every case of serious sickness, death or discharge for disability every important detail should be entered on the register of patients. Indeed the case of every man who is treated on account of accident or sickness should be entered on this register, which is practically a retained copy of the regulation monthly report of sick and wounded. The calls made by chief surgeons for care in filling out the columns of this report are regarded as red-tape by some medical officers who consider that their duty is the practical one of caring for sick and wounded men, and that if this is done conscientiously it matters little whether or not any written record of the cases be made. They overlook the fact that this monthly report of sick and wounded when filed in the War Department will constitute the only medical evidence on which hereafter claims for pension will be decided. In this lies its importance. The medical records of the early months of the Civil War were very defective and great injustice both to individuals and to the Government was undoubtedly caused thereby. The Medical Department at the present time should profit by the experience of the past and should put as much energy into its methods as will ensure the rendition of accurate reports from every volunteer command.

THE HEALTH OF SANTIAGO DE CUBA.

We learn that during the past ten years there have been two epidemic visitations of yellow fever in Santiago and its neighborhood, with cases scattered in the intervening years, so that the infection of the fever must be considered to be there and ready at any time, under favorable conditions, to cause an outbreak among our unacclimated men when they leave the mountains and enter the city. In November, 1890, after a period of freedom from fever, the disease was introduced into Santiago and its vicinity by workmen from Spain who had been ashore for some days at Porto Rico while *en route* to Cuba. Yellow fever was then prevailing at Porto Rico and some of the Spanish emigrants became infected. These settled in Santiago and introduced yellow fever among the people employed at the Juragua Iron Works. The disease prevailed at these works for twelve months, attaining its maximum in June, 1891, during which month there were 57 cases, of which 21 were fatal, among the 1300 people in the employ of the Iron Company. During the twelve months the epidemic gave a sum of about 265 cases, of which 100 were fatal. A few cases occurred in the winter of 1892–93 and again in the winter months of 1894; but in July, 1895, something like an epidemic was again lighted up, lasting until November and giving 107 cases, or which 47 were fatal. The disease prevailed at these periods among the population of Santiago. Since then only sporadic cases have occurred.

THE SKIN AFFECTIONS OF TYPHOID FEVER.

In a disease so prevalent and wide-spread as typhoid, necessarily lesions of any and all systems occur, some of which may be regarded as accidental and casual, while others from the comparative frequency with which they exist must be looked upon as in the nature of complications. Indeed, a third class may be added, that of intercurrent affections, those diseases which might with great probability never have occurred had not the resisting power of the economy become so impaired by the ravages of the disease that ready entrance is allowed to the specific organisms of other affections, which in a healthy state of the body could not have obtained a foothold. Of these germs streptococci, staphylococci and pneumococci, play a leading part; they also contribute largely to what might be called the complications proper, while late reports show that the typhoid bacillus itself is amply able to produce some of the most important complications of the disease, as in the cases of OHLMACHER, in which he isolated this germ in two cases of meningitis ("Clinical and Pathologic Features of Two Cases of Typhoid Meningitis," by O. P. OHLMACHER. The *Cleveland Medical Gazette*, May, 1897). As regards the dual role of the pus organisms, especially the streptococci, they now produce an attack of erysipelas, an intercurrent affection; now occur in suppurative parotitis and other abscess formations, complications. It is sometimes difficult to say whether pneumonia acts as an intercurrent disease or as a complication, but the endo- and pericarditis occurring in typhoid and pneumo-typhoid so-called, are complications.

The skin, from its very office of protector and from its exposed situation, is especially liable to disease, and the lowered vitality of the body in typhoid does not tend to diminish this danger; the integrity of the appendages of the skin becomes still more jeopardized

because of correspondingly greater impairment of nutrition. To the student of typhoid, the most important skin lesion, both on account of its frequency and its diagnostic value, is the eruption of the rose-colored, lenticular spots; papular elevations, usually situated upon the abdomen, though they may be found on any part of the trunk and even on the face and extremities, occurring as a rule in suddenly appearing crops which, lasting a few days, gradually disappear, leaving brownish stains; occasionally they become capped by a small vesicle, but even in the malignant cases rarely if ever become pustular; indeed, in the malignant cases they are more likely to be the subjects of hemorrhage, forming the so-called petechiæ. They rarely exceed four millimeters in size and disappear readily on pressure, only quickly to reappear when the pressure is removed.

In cases which perspire considerably, especially those cases in which the coal-tar antipyretics have been given and even sometimes after the bath, miliary vesicles or sudamina are often present, particularly on the chest and abdomen. With the establishment of convalescence these disappear, and where they have been abundant, a branny desquamation not unlike that of measles often follows.

Any one who has seen considerable of hospital practice has doubtless noted the frequency with which steel gray or more often pale blue spots are seen beneath the skin of the abdomen, chest, and particularly the thighs. These peliomata, as they are called, are not confined to typhoid, are usually somewhat irregular in outline, are larger than the rose spots, do not disappear on pressure, often cause the victim to irritate them by scratching, and are undoubtedly due to the presence of pediculi.

During the early stages of the disease, and especially if any of the coal-tars or quinin have been administered, an erythematous rash may appear, first on the chest as a rule, usually extending from there all over the body with the exception of the hands and face. This rash occurs with considerable frequency, rather more so than either urticaria or herpes, neither of which are by any means uncommon. Gilman Thompson, in his report of "Unusual Complications of Enteric Fever" ("Medical and Surgical Report of the Presbyterian Hospital in the City of New York," 1898), speaks of two skin lesions, purpura hemorrhagica and papular eczema. He reports a case of the former at some length after giving a typic history of typhoid infection. "On examination he appeared neither anemic nor emaciated. The temperature was 104; pulse, 90; respiration, normal. The Widal reaction was obtained. The urine was normal. The skin was somewhat hyperemic, and a number of typic enteric spots were present upon the abdomen, lower chest and arms. The spleen was barely palpable, and the liver appeared an inch below the costal margin. No other visceral abnormalities were discoverable. There was moderate alcoholic tremor. Two days after admission severe epistaxis returned, which the house physician was only partially able to control by plugging and the use of styptics. At this time a number of small hemorrhagic spots appeared, scattered over the back and upon the left forearm. The dejecta were slightly streaked with blood. During the next three days the patient became excessively weak from loss of blood and during the period from the ninth to the twentieth day of the disease, he showed no improvement. The temperature rose to 105.6 and remained steadily high (104.5). The urine became hemorrhagic, showing red blood cells, hemoglobin, leucocytes, hyaline casts and albumin, 35 per cent. by volume. Well-marked Ehrlich reaction was present. Subconjunctival hemorrhage took place in the left eye, and the ecchymoses became abundant over the chest, abdomen and extremities. They were also observed on the buccal mucous membrane. . . . The tongue became dry and fissured, there was bleeding from the gums and the breath was foul. . . . During the fourth week of the disease there was no increase in the purpuric spots, many of which began to fade, but the other symptoms continued with occasional attacks of epistaxis. Slight hemorrhage also occurred from the left ear. . . . During the fifth and sixth weeks slight improvement gradually supervened, the urine became less hemorrhagic, epistaxis ceased, and on the forty-second day of the disease, the morning temperature reached the normal for the first time."

Of other lesions of the skin, not eruptive in character, one of the most common is edema. This may result from a variety of causes, as thrombosis of a vein (especially the femoral), as a sequence of nephritis, but most commonly in the lower extremities, due to the cachexia and emaciation produced by the disease. In the latter instance the edema is most apt to manifest itself when the patient begins to walk around, and indeed almost every case of severe typhoid is more or less subject during convalescence to this annoyance. Even the laity are familiar with the frequency with which alopecia occurs in this disease, and they are likewise imbued with the hope that their hair will "grow in curly." Occasionally permanent baldness results, but the instances are very rare. Of the other appendages of the skin, the nails also suffer from lack of nutrition, and one can often make the diagnosis that a patient has been suffering from some prolonged illness, presumably typhoid, by transverse ridges appearing on the nails several weeks after convalescence has become established.

The skin phenomena occurring as a result of nervous influence brings us toward the end of our subject. The vaso-motor phenomenon known as the *tache cérébrale*, produced by running the nail rapidly over the skin, when a red line with white boundaries is formed, is not peculiar to typhoid but may be present

in any fever. Exposure of the skin of any part of the body which has been or is usually covered, often causes in nervous subjects a pinkish injection of the skin of the exposed parts. This is commonly seen when the attending physician draws down the bed clothes in his examination for spots or enlarged spleen. As a sequel of typhoid, a lesion has often been observed, and in males as well as females, of the *linea atrophicæ*, usually known in obstetric practice as the "silver lines of pregnancy." These whitish streaks, occurring for the most part on the abdomen and hips, are undoubtedly due to neuritis.

Other diseases, intercurrent in character, may occur and produce skin eruptions of their own. Erysipelas may coexist with typhoid or be induced by the lowered vitality produced by the latter, and gangrene may be superinduced as the result of pressure. This gangrene is usually of the moist variety, and may manifest itself in one or both legs, or over the lower part of the spine (as a bed sore), or in the cheek as a gangrenous stomatitis or noma. Indeed, noma follows typhoid more frequently than any other disease, unless it be measles.

PREMATURE OLD AGE. HOW TO AVOID IT.

A long life is variously valued by different individuals, but the great majority will without question accept it as a desirable acquisition. The ones who would theoretically disclaim any desire for length of days would in many cases exhibit the same objections to an early death or even one at any time, as those who honestly admit their preference for life even at the expense of the disagreeable possibilities of old age. The instinct of self-preservation, the clinging to life, is a safeguard of the race and it is to be hoped at least that it may never be a less prominent characteristic of mankind than it is at the present time. Old age is inconvenient, in some respects unattractive, and it is certainly a matter of expense to care for those who are past the productive period of their lives and who have not the excuse for their existence of the equally unproductive infant, that their term of usefulness is still to come. Nevertheless none of us who have a properly constituted disposition would wish matters otherwise than they are or care to lose prematurely, even for a moment, those who have passed the meridian and are now on the downward grade of life, however unproductive or burdensome they may be. There is a credit to their account in our social bank for past services which we can not ignore.

While old age is honorable and its infirmities are to be respected, it is not desirable nor, in a medical point of view, the proper thing for them to appear before their time. Premature old age means that the individuals or their ancestors, it may be back to the third or fourth generation, have sinned against their physical welfare and are reaping the reward. While the most of us are probably more or less handicapped by heredity, it is well to know how to avoid the evil effects of a bad inheritance and to so train up the mature man in the way he should go that when he is old he will still have as few of the drawbacks of senility as is possible, and above all that he may not acquire these out of due time. This avoidance of premature old age forms the subject of a very readable and instructive article by Dr. HERMANN WEBER in a new publication, the *Zeitschrift für diätetische und physikalische Therapie*, the first issue of which has just appeared, an article which would be well worthy a wider circulation than it is likely to have in a special German medical magazine. It would be impossible to abstract it here fully, but one or two of the points made by the author can be mentioned. It is well known that the chief cause of senile failure is to be sought in the circulation; the nutrition of the brain and nervous system suffer from the incapacity of the heart and the rigidity and narrowing of the vessels through atheromatous and other allied conditions. If the finer vessels of the brain lose to any extent their facility of functioning, their elasticity, then the nerve cells suffer, both those of the cortex and the basal ganglia. To a lesser extent this same is true as regards the minute vessels of the heart itself and of the stomach in their action in bringing on the changes characteristic of senility; the disturbances of the functions of the heart itself are the causes of secondary lesions elsewhere, and the importance of the normal functions of the digestive and the excretory organs needs no extended elucidation. The causes of the early appearance of these vascular changes themselves are the important element of the question, and Dr. WEBER'S views on this point are well worthy of notice. According to him, the chief producers of these vascular degenerations are overnutrition, inactivity both of mind and body, too much sleep, and not infrequently with these we find alcoholic excess and immoderate use of tobacco. A too engrossing and monotonous occupation and emotional depression of any kind may also have its share. Over-feeding and inactivity are generally recognized causes of physical degeneracy, but it has not been so common to attribute to over-sleeping the importance here given it. His view that for most people over the age of fifty, six or seven hours of sleep is an ample allowance may not be in accord with the preconceptions of many, but it has a certain reasonableness. The fact that in all probability there is a more sluggish cerebral circulation and more opportunity for stasis and obstruction is in its favor Wakefulness has been reckoned as an indication of senility, but according to this theory it is a conservative symptom and encouraging rather than otherwise. As Dr. WEBER says, it is difficult to lay down rules in a matter in which there are so many and so wide individual differences, and there are many con-

ditions in which abundant sleep is beneficial; yet, for the majority of healthy and especially of elderly individuals, temperance in sleep is as important as that in other restoratives and sedatives.

Another important matter, but one that has less apparent novelty, is the need of mental and bodily activity for warding off the symptoms of premature senility. The instances of extreme longevity are, it is true, to a large extent those who have led a simple quiet life, apparently without startling vicissitudes or excessive bodily or mental exertion. But with these we have abundant examples of active intellectual work carried on in extreme old age, and on the other hand we have every day instances of rapid failure after the cessation of regular accustomed employment. While the bodily powers lessen to some extent with age and require some modification of the activities, any sudden interruption or diminution of them may be disastrous. The recommendation that every man should have some hobby or side issue of interest is not a bad one, and may maintain the zest of life when the regular occupations are laid aside.

A happy and hopeful disposition, it goes without saying, is a wonderful aid in warding off and tempering the discomforts of old age. The use of alcohol in moderation is commonly thought to be beneficial in the aged, and St. PAUL'S recommendation of a little wine for the "often infirmities" is frequently repeated by the laity and endorsed by the physician. Dr. WEBER does not endorse this view; wine, in his opinion, is not *die Milch der Greise*, and is not effective in staving off the weaknesses and defects of advancing years.

With all our much discussed degeneracy of modern times, man is now a longer-lived animal than were his forefathers, though the evidence of this is perhaps more apparent in actuaries' tables than in striking individual cases. What we need now, as at all times, is more popular enlightenment in regard to the important hygienic question of how to meet the inevitable downward stage of life, to mitigate its necessary disadvantages and to avoid those that can be spared us. We ought all to know how to grow old becomingly and comfortably; with this knowledge, practically applied, the extension of life will be in every way more desirable and endurable.

DESPONDENT OUTLOOK FOR SPAIN AND OTHER LATIN PEOPLES OF EUROPE.

Dr. GUIDO BACCELLI of Rome, who was president of the Eleventh International Medical Congress, and who has been called the Italian Virchow, has made known certain pessimistic views of the Spanish trouble. He thinks Americans are more to be dreaded by the Latin nations than the Chinese. The yellow races, he thinks, no longer menace Europe, but there is actual menace from the United States, "where the expanding, absorbing Anglo-Saxon or cosmopolitan energy must grow and spread and ultimately overwhelm that part of European civilization which it does not renew. War with Spain is the beginning. Afterward it will be a mere question of the "survival of the fittest." In other words the humanitarian instincts and voice of the northern races must be listened to and taken into the account by the more heartless and tyrranous people of the south of Europe,—and in the name of sweet charity is it not about time that a new leaf should be turned? Americans are not anxious for territorial aggrandizement, but it is due from us to those countries that may come to us by conquest, that their kind of government shall cease to be of the Spanish variety. And further, when the Latin peoples are entirely ready for arbitration instead of war as the standard method of settling international troubles, they will find in the United States a hearty friend of peaceful measures. We do not love war, the destructive arts have been cultivated far less than the constructive ones, so that some of our good friends across the water have actually fallen into the belief that any old nation might bite its thumb at us with impunity. As ARTEMUS WARD might have expressed it, "Arbitration is the *best holt* of the alleged decadent Latin peoples of Europe," and the same may be said on behalf of the peoples that are coming strongly to the front.

But there must first be an end of Spanish arrogance, bluster, insufferable assumption, sanitary crimes and unspeakable cruelties. Pending the general adoption of the wholesome principle of arbitration as a means of settlement of international difficulties, we rely on the persuasive cannon of DEWEY, SCHLEY, MILES and SHAFTER to teach the Spaniard his unwelcome lesson.

CORRESPONDENCE.

WAR CORRESPONDENCE.

BY LIEUT.-COL. NICHOLAS SENN, U. S. VOLS.,
CHIEF OF OPERATING STAFF WITH TROOPS IN THE FIELD.

War always has been and always will be a cruel thing. The very object of war is to kill, disable, maim and starve until the result of the contest shall decide the issue by demonstrating the superiority of one army over the other in number, courage or skill of warfare. "The battle is the Lord's," but victory is not always on the side of justice. The Lord teaches, rules and benefits the children of men now, as during the time of the prophets, as often by defeat as victory. The God of battles has ways and means often impossible to comprehend, but they always lead to results beneficial to mankind. The terrors and sufferings of war are the prices paid for defeat as well as victory. The wonderful improvements made in weapons and projectiles during the last quarter of a century have made modern warfare more destructive if not less cruel. It is difficult to foretell the relative number of dead and wounded in the engagements of the future. Reliable information on the subject must come from actual observation on a large scale on the battlefield and not from the results of experiments on the lower animals and the cadaver. Warfare has become a science and an art,

and victory will depend as much on the skill and foresight in strategy of the commanding officers as the endurance and valor of the troops. The long range rifles and the better marksmanship of the average soldier will increase the distance between the fighting lines and give the commanding officers better opportunities for the exercise of their skill in maneuvering the troops. In every respect war will and must assume more scientific aspects for the display of skill. What the improvements will be can only be determined by experience on a large scale. The rapid mobilization of troops, supply of ammunition along the line of battle, flank movements, the quick digging of shallow entrenchments for the protection of the soldiers in line of battle, are some of the important subjects which are engaging the minds of our wide awake military officers and which await a satisfactory solution by as yet an unknown second Napoleon. Let us hope that this important person is now in existence, an American citizen and now engaged in the present war with Spain.

HOSPITAL CORPS.

The humane side of the present methods of warfare is best shown by the organization of an efficient hospital and ambulance corps. The sick and wounded of the great war of the rebellion suffered indescribable pain and agony owing to inadequate provisions for transportation, first aid and nursing by men detailed for this special purpose. Our sick and wounded

Private, hospital corps U.S. Army, field equipment (front view).

Private, hospital corps U.S. Army, field equipment (rear view).

can look forward more hopefully for more prompt and efficient treatment. The Government, through the Surgeon General and Secretary of War, is making ample preparations for the prompt and efficient treatment of those requiring medical or surgical aid. The prevention of disease by the employment of improved hygienic and sanitary measures will do much in minimizing the number of ignominious deaths in the field and general hospitals and in maintaining the full fighting force. The need of a well organized and well equipped hospital corps became apparent during our late war, but it was many years after the Union was restored before the necessary legislation was effected which brought it into existence. The Hospital Corps in the United States Army was created by an act of Congress approved March 1, 1887.

The law under which the Hospital Corps was established and as revised by March 16, 1895, and March 16, 1896, reads as follows:

(The Military Laws of the United States, 1897.)

"673. That the Hospital Corps of the United States Army shall consist of hospital stewards, acting hospital stewards and privates; and all necessary hospital services in garrison, camp or field (including ambulance service) shall be performed by the members thereof, who shall be regularly enlisted in the military service. Said Corps shall be permanently attached to the Medical Department, and shall not be included in the effective strength of the Army nor counted as a part of the enlisted force provided by law.

"674. That the Secretary of War is empowered to appoint as many hospital stewards as, in his judgment, the service may require; but not more than one hospital steward shall be stationed at any port or place without special authority of the Secretary of War. That there shall be no appointments of hospital stewards until the number of hospital stewards shall be reduced below one hundred, and thereafter the number of such officers shall not exceed one hundred.

"675. That the pay of the hospital stewards shall be forty-five dollars per month, with the increase on account of length of service as is now, or may hereafter be allowed, by length of service, as is now or may hereafter be allowed by law, to other enlisted men. They shall have rank with ordnance sergeants and be entitled to all the allowances appertaining to that grade.

"676. That no person shall be appointed a hospital steward unless he shall have passed a satisfactory examination before a board of one or more medical officers as to his qualification for the position, and demonstrated his fitness therefor by service of not less than twelve months as acting hospital steward; and no person shall be designated for such examination except by written authority of the Surgeon-General.

Litter drill.

"677. That the Secretary of War is empowered to enlist or cause to be enlisted, as many privates of the Hospital Corps as the service may require, and to limit or fix the number, and make such regulations for their government as may be necessary; and any enlisted man in the army shall be eligible for transfer to the Hospital Corps as a private. They shall perform duty as wardmasters, cooks, nurses, and attendants in hospital, and as stretcher-bearers, litter-bearers and ambulance attendants in the field, and such other duties as may by proper authority be required of them.

"678. That the pay of privates of the Hospital Corps shall be eighteen dollars per month, with the increase on account of length of service as is now or may be hereafter allowed by law to other enlisted men; they shall be entitled to the same allowances as a corporal of the arm of service with which on duty.

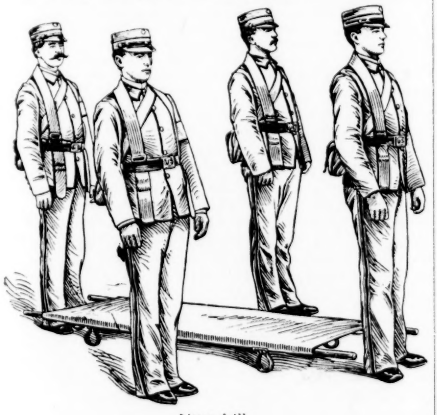
"679. That privates of the Hospital Corps may be detailed as acting hospital stewards by the Secretary of War upon the recommendation of the Surgeon-General whenever the necessities of the service require it; and while so detailed their pay shall be twenty-five dollars per month, with increase as above stated. Acting hospital stewards, when educated in the duties of the position, may be eligible for examination for appointment as hospital stewards as above provided."

Since the original law providing for a hospital corps was passed many new features have been added which have made this branch of the military service more efficient.

The pay of members of the Hospital Corps is according to grade, as follows per month: Hospital steward, $45; acting hospital steward, $25; private, $18.

To the rates of pay enumerated above, 20 per cent. is added in time of war.

During the present war the commander of an army corps, or of a division, or of a brigade acting independently of a corps, has full control of enlistments for the Hospital Corps within his command, and of the detail of acting hospital stewards and the appointment of hospital stewards. The Hospital Corps force of the present war is made up three per cent. of the privates obtained by special enlistment or transfer from the line, that is, a regiment of 1000 men is entitled to 30 men for the Hospital Corps. The allowance for horses, wheel transportation and tentage is ample, as will be seen from the following order recently issued by the War Department:



Litter drill.

GENERAL ORDERS, No. 76.

HEADQUARTERS OF THE ARMY, ADJUTANT GENERAL'S OFFICE, WASHINGTON, June 22, 1898.

I.—By direction of the Secretary of War, the following allowance of horses for mounts, wheel transportation, tentage, etc., for the Medical Department of the Army in the field is authorized:

HORSES FOR MOUNTS.

	Hospital stewards.	Acting hospital stewards.	Privates.
To each regiment of infantry	1	.....	1
To each artillery battalion (3 light batteries)	.....	3	1
To each cavalry regiment	1	.....	2
To each corps headquarters	1	.....	2
To each division headquarters	1	.....	1
To each brigade headquarters	1	.....	1
To each division ambulance company	7	3	12
To each corps reserve ambulance company	7	3	12
To each division field hospital	2	2	6
To each corps reserve hospital	2	2	6

Wheel transportation.—One ambulance to 400 men of the effective force. One 4-horse wagon to 600 men of the effective force. One 4-horse wagon to each brigade.

Tentage.—For each ambulance company: 17 common tents for privates; 2 common tents for noncommissioned officers. For each division field hospital: 15 common tents for privates; 2 common tents for noncommissioned officers; 1 common tent for supplies. Hospital tents on a basis of 6 patients (beds) to each tent. Hand litters, with slings, to be furnished by the Quartermaster's Department: 1 for each company; 2 for each ambulance.

Requisitions for the necessary articles of camp and garrison equipage, cooks, etc., will be based on the official allowances for companies of infantry.

Requisitions for the before mentioned supplies will be sent in separately for *divisions*, with statement whether or not the division organization is complete.

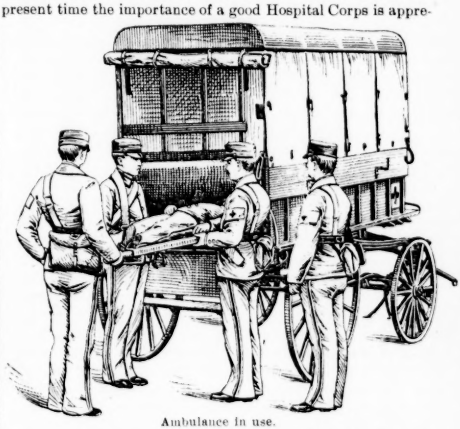
Horses and wheel transportation will be furnished by the Quartermaster's Department, and horse equipments by the Ordnance Department.

II.—Commanding Generals of Army Corps are directed to detail, upon the application of Chief Surgeons of Corps, two officers not above the grade of first lieutenant for duty as Acting Assistant Quartermasters with the medical service of each division.

BY COMMAND OF MAJOR GENERAL MILES:

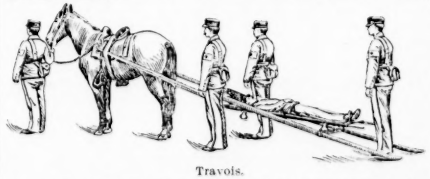
H. C. CORBIN, Adjutant General.

As usual, many difficulties have presented themselves in the way of securing the necessary material both in quantity and quality, for the Hospital Corps during the present campaign. The commanding officers are always averse to lose the most desirable men of the line. I have reason to believe that at the present time the importance of a good Hospital Corps is appre-



Ambulance in use.

ciated more than ever by the commanding officers. The field officers have co-operated with the corps surgeons in the selection of the best men for this special service. The work of organization has progressed slowly, but on the whole in a satisfactory manner. The enormous demand for equipments and the sudden mobilization of troops have contributed much in retarding the organization and instruction of the Hospital Corps. The designation of the Corps as a Hospital Corps does not convey the proper meaning of the manifold purposes for which the men are enlisted and transferred, and has been the means of misleading many a patriotic doctor and medical student now engaged in this branch of military service. Many



Travois.

complaints are heard because instead of doing hospital duty proper the men are made to cook, drive ambulances, chop wood, dig sinks and haul water. There are today too many doctors and medical students in the Hospital Corps. The duties of the Hospital Corps are manifold, and in their proper discharge requires more skilled artisans than medical men. A good Hospital Corps should consist largely of young, bright, intelligent, robust men skilled as carpenters, cooks, blacksmiths, stenographers, photographers, ambulance drivers, tailors, shoemakers and other trades. Doctors and medical students should be in the minority, and ought not to exceed twenty-five per cent. of the non-combatant force. If the legitimate function of

the Hospital Corps were better understood there would be fewer applications for this service on the part of professional men. The general impression prevails that the duties of the members of the Hospital Corps are less onerous than those of the private soldier of the line. It is difficult to conceive how such an idea could have originated. It is also understood that the non-combatant soldier is exposed to less risk of life than his comrade of the line, when the fact is apparent that in addition to the ordinary dangers incident to warfare, he is more exposed to the greatest source of danger—disease. The nursing in the field hospital is done exclusively by the Hospital Corps men, and involves much loss of sleep and constant care and attention. The transportation of sick and wounded is a task requiring good judgment, promptitude and care. A combination of firmness and gentleness, thoughtfulness of action and a determination to perform duty regardless of rest and comfort, is an essential element of success in the work of every Hospital Corps man. The climatic influence, the prevalence of tropical diseases will tax to the utmost the resources of the Hospital Corps during the present war with Spain. That the work will be well and cheerfully done I have no doubt, judging from my observations during the last two months.

The American people expect that the sick and wounded of this war shall receive the best possible attention, and in this they will not be disappointed. The Government, although sometimes necessarily tardy, is willing and anxious to do all in its power to alleviate the horrors of this war, and in this humane intention it will receive the hearty co-operation of the Hospital Corps. The writer has been permanently detached from the Sixth Army Corps now at Chickamauga by a recent order, and is now on his way to Santiago de Cuba on special duty. He goes to the front as Chief of the Operating Staff with the troops in the field. For the purpose of informing my many friends among your readers what I am expected to do, I append a copy of the letter assigning me to my new field of labor.

HEADQUARTERS OF THE ARMY,
WASHINGTON, D. C., June 29, 1898.

Lieutenant-Colonel NICHOLAS SENN, U. S. V., Chief of the Operating Staff.

Sir:—In assigning you as Chief of the Operating Staff, the Major-General Commanding the Army directs me to say that, at the several points to which you may be assigned to duty, you will confer with the Chief Surgeon of the Corps engaged as to the means by which you may consult with and advise the medical officers serving with that army regarding the clinical features of their professional work; that you will recommend such methods, either by lectures or operative demonstration, as may in your judgment be best suited to accomplishing the purpose in hand; that you will take the necessary steps for collecting data upon which the clinical and pathologic records of the field and hospital service may be classified, and from which the future medical and surgical history of this war may be prepared. Your present assignment will be for duty with the Fifth Army Corps, now operating before Santiago de Cuba, and at such future time as the General Commanding may decide, you will be transferred to other points where active military operations are progressing.

Very respectfully,
COL. CHAS. R. GREENLEAF,
Asst. Surg.-Genl. U. S. A., Chief Surgeon, Army in the Field.

I hope I will reach Santiago before surrrender and enter it with our victorious troops. My address for the present will be

Fifth Army Corps, Santiago, Cuba.

My next communication will be from the seat of war.

Cerebro-Spinal Meningitis--A Correction.

ELMDALE, KANS., June 28, 1898.

To the Editor:—An oversight in reading the proof of "Cerebro-Spinal Meningitis" allowed sixth line from bottom, first column, page 1499, Vol. xxx, to read "50 per cent." instead of "20 per cent." Very respectfully,

J. F. SHELLEY, M.D.

The Permanent Secretary Explains.

PHILADELPHIA, June 27, 1898.

My Dear Dr. Hamilton:—I have just read your editorial, and feel that it is due to myself to say that at the close of the session on Friday, I was ready to turn over to Mr. Whitford the minutes in full, but was compelled to wait the return of the papers containing the resolutions, etc., which were referred to the Business Committee, and reported upon by them on Thursday, but which were retained by the Secretary of that Committee that he might put them in order. The enclosed copy of a letter from him received by me on Friday morning will explain why they were not ready then for incorporation in the minutes:

Brown-Palace Hotel,
DENVER, COLO., June 10, 1898.

My Dear Dr. Atkinson:—It has been absolutely impossible for me to write up the records of yesterday in my Executive Committee book, and as I am off today I am taking them all with me to New York. They are all safe and will be sent to you when I return, but perhaps not for two weeks or so.

If there was anything else referred to the Committee yesterday or today kindly let me have it as soon as possible.

I remain, yours truly,
[Signed] L. DUNCAN BULKLEY,
Sec'y Executive Com. A. M. A.

You see that I am powerless, as it was my duty to give to this Committee all the matters referred to it. Nor did I think for one moment that they would not be at once handed to me when the report was made and acted upon by the Association. May I ask the publication of this reply as prominently as your editorial? Yours very truly,

W. B. ATKINSON,
Permanent Secretary.

[When the reports on the resolutions were read by Dr. Bulkley, they were then the property of the Association, and he had no more right to carry them away than any other member. There is no "Executive Committee."—ED.]

Dr. Eichberg.

CINCINNATI, June 29, 1898.

To the Editor:—Please correct statement of your Cincinnati correspondent, in last issue, that "Dr. Jos. Eichberg has resigned from Miami Medical College." He has resigned the office of Secretary, but retains his position of Professor of Practice. Dr. Olive P. Holt has been made Secretary of the College. Respectfully,

WM. H. TAYLOR, Treas'r M. M. C.

ASSOCIATION NEWS.

American Medical Association.

Official Minutes of the General Sessions of the Forty-ninth Annual Meeting, held in Denver, Colo., June 7, 8, 9 and 10, 1898.

(First Gen. Session, continued from p. 1533, Vol. XXX.)

Dr. Bulkley, Secretary of the Business Committee, read a report of that Committee relative to prize essays, the publication of the Association program and the general sessions. The following is the report on the general sessions and Section meetings:

Resolved, That the Sections be directed to hold no meetings during the hours set for the transaction of executive business in the general sessions, and that the general sessions take place at 11 A.M., instead of 10 A.M.

Dr. Dudley S. Reynolds of Louisville—I move that the report of the Business Committee be adopted. Seconded.

Dr. Wm. H. Humiston of Cleveland—I object to adopting the resolution with reference to deferring the meeting of the General Session until 11 o'clock. It will encroach upon the work of the Sections. If the General Session is postponed until 11 o'clock, and then continue until 2 o'clock, which is likely to be the case, we will have practically no time for dinner, and it will interfere materially with the work of the various sections.

Dr. J. B. Hamilton of Chicago—I would respectfully dissent

from that part of the report which states that the program has not been published as a whole. That statement is incorrect, because each Section of the program has been published as received. It is not possible to publish them as a whole, because up to the last minute corrections are made which appear in the finished program. As these corrections were received not more than ten days before this meeting, how is it possible to print the program as a whole, when we only received the final program from the bindery last Friday?

Dr. H. M. McConnell of Pennsylvania.—I move, sir, that we strike out the word *adopt* and insert in its place the word *receive*. Seconded.

Dr. Daniel R. Brower of Chicago—I wish to state that if we meet in general session at 11 o'clock, it will give the various Sections two hour's work, namely, from 9 until 11. Furthermore the best material of this convention will be in the Sections. (Applause.)

Dr. Leartus Connor of Detroit—The remarks of the last gentleman meet with my approval. It would meet with my approval if these general meetings were never called until 12 o'clock and be closed at 1. (Applause.) I submit to the gentlemen present whether the presentation of matters this morning is worth our while to travel a thousand miles to listen to. The affairs of this Association should be so conducted that it will pay us to attend the meetings. We are here for business, not to hear about the Rush Monument Fund and a lot of other things of which most of us knew before. During the reading of these reports we simply go to sleep. Some of the members were sleeping around me this morning. We are not here to be put to sleep by bad air, or to be shut up in a sweat-box over matters in which we have no earthly interest. This is the work of committees and for which we appoint them. The benefit of these meetings is to be derived from attending and participating in the work of the Sections. It is only right that we should all attend these general meetings, and take an active part in the transaction of business, and if we are prompt the business can be transacted in a short time, and it will not burden any of us to do it. Those who have the arrangement of the meeting in charge should see to it hereafter that the business of the Association shall be transacted in one hour each day if possible. That is all the time we will need if we are prompt in our work. Let us have more time for Section work where we have the brains of the Association, and where the enjoyment comes and profit follows. In this way we will make the JOURNAL better and our meetings will be meetings of pleasure and of satisfaction to us all. Let us encourage all of our friends to come together and join with us to work in the interest of medical science and not listen to a lot of rot. (Loud applause.)

The motion to receive was put and carried.

On motion the Association adjourned until Wednesday, 11 A.M.

JUNE 8—SECOND GENERAL SESSION.

The Association met at 11 A.M., and was called to order by the Second Vice-President, Dr. J. A. Thompson of Indianapolis.

The minutes of the previous General Session were read by the Permanent Secretary and approved.

Dr. Graham of Denver made some announcements on behalf of the local Committee of Arrangements.

The Fourth Vice-President, Dr. T. J. Happel of Tennessee, now took the Chair.

Dr. Bulkley stated that the Business Committee was unable to present a report upon the President's Address or upon the Rush Monument Committee, but that such report would be presented tomorrow.

Regarding the resolution in reference to Associations of the United States, the Business Committee simply reported progress and asked that the matter be referred to the Committee for another year.

On motion, the wish of the Committee was granted.

The Business Committee recommends for adoption the following resolution, which was sent to them with the endorsement of over twenty members of the Association in order to save time on the floor. The resolution is not directed to the Committee, otherwise it would be naturally referred to the Committee.

Resolved, That the Sections be directed to hold no meetings during the hours set for the transaction of executive business in General Sessions, and that the General Sessions take place at 11 o'clock instead of 10 after the first day.

Dr. Bulkley moved that this resolution be adopted. Seconded.

Dr. H. M. McConnell of Pennsylvania.—I think the General Session of the first day should commence at 10 o'clock. That is the day when we have so much to do, and I would therefore move that the General Session on the first day be begun at 10 o'clock, and thereafter at 11. I offer this as an amendment. Seconded.

Dr. Alonzo Garcelon of Lewiston, Maine—I do not rise, Mr. President, to speak to the amendment particularly. I have no objection to that. I wish to say that the business of the General Session can not be properly attended to if we meet at 11 o'clock. There is a vast amount of very important business to be done at every General Session. I have been a member of the Association for a great many years, and I know very well the difficulty there is in getting through with our business, even when we meet at 10 o'clock, unless we hold the Session beyond the ordinary time for adjourning, namely, to 1 o'clock in the afternoon. I trust the good sense of this Association will see to it that its business shall be attended to, and it can be done if the members are prompt, are here in proper time, and give three hours to the General Session each day for the purpose of transacting the business that comes before the Association. You know, Mr. President, we have the Presidential Address; we have other addresses to come before us, and as illustrated yesterday, it is impossible for us to get through with our business satisfactorily and intelligently. (Applause.) (Cries of Question! Question!)

Dr. Dudley S. Reynolds of Louisville, Ky.—I am as much interested in the Section work as anybody in the Association, likewise in the general prosperity of the whole body. If the recommendations of our Business Committee, to whom we commit all the details of our business that my distinguished and venerable friend from Maine referred to are carried out, then we will have no need for three hours every day in General Session. If we adopt the amendment suggested by the gentleman from Pennsylvania, the first day being the most important one, when the largest amount of business is required to be transacted, on that day we will have three hours; that is, meet at 10 o'clock and continue, if necessary, until 1. On subsequent days I am sure that 11 o'clock is quite early enough for the General Session. It will enable the Sections to have two good hours of work in the forenoon; it will, at the same time, spur us up and make us prompt in the discharge of our duties in reference to executive business when we meet in general session. I move the adoption of the resolution as amended. Seconded and carried.

The President—The next item is with reference to a resolution, to be presented by Dr. Dudley S. Reynolds.

The Permanent Secretary read the resolution as follows:

WHEREAS, The AMERICAN MEDICAL ASSOCIATION did at Detroit, 1892, unanimously resolve to demand of all the medical colleges of the United States the adoption and observance of a standard of requirements of all candidates for the degree of doctor of medicine, which should in no manner fall below the minimum standards of the Association of American Medical Colleges, and whereas this demand was sent officially by the Permanent Secretary to the Deans of every medical college in the United States and to every medical journal in the United States.

NOW, therefore, the AMERICAN MEDICAL ASSOCIATION gives notice that hereafter no professor or other teacher in, nor any graduate of any medical college in the United States, which shall after January 1, 1899, confer the degree of doctor of medicine or receive such degree on any conditions below the published standard of the Association of American Medical Colleges be allowed to register as either delegate or permanent member of this Association.

Resolved, That the Permanent Secretary shall within thirty days after this meeting send a certified copy of these resolutions to the Dean of each medical college in the United States and to each medical journal in the United States.

The resolution was seconded by Dr. Parke Ritchie of Minnesota. (Referred to the Business Committee.)

The Permanent Secretary said he had received a communication from the Board of Trustees by Dr. French Stone, which was referred to the Business Committee without being read.

14 W. Ohio St., INDIANAPOLIS, IND., June 3, 1898.

To the Business Committee of the AMERICAN MEDICAL ASSOCIATION.

Sirs:—The proposition to adopt a distinctive, attractive and permanent badge to designate members of the AMERICAN MEDICAL ASSOCIATION, which has grown to be one of the most powerful and influential scientific organizations in the world, is hereby respectfully presented for favorable consideration during your next annual meeting at Denver, Col. This proposition has been discussed among members of the Association for many years, and the preponderance of expressed sentiment is that some method of recognition when they meet by chance as well as on social and professional occasions, is a necessity. The newspapers and the medical press have also encouraged the use of some suitable emblem which should be constantly and conspicuously worn, not only for the above purpose, but as a means of professional identity in cases of emergency and acci-

dents that may aid in saving life. It is true that we have many men of our profession holding official position in the organization, and otherwise distinguished, for whom in some particulars medical insignias are of less benefit than to the vast majority of its members of good standing who pay their annual dues and aid in other ways in maintaining the strength and influence of the Association. These men are not only entitled to some method of making known their connection with the organization, but would greatly appreciate the privilege of wearing an emblem that had been approved and adopted as a permanent badge, indicating worthy membership of our National Association. It is also believed that if such an emblem were adopted that other medical men throughout the country would be inclined to become permanent members of the organization, and thus aid in giving it additional financial as well as numerical strength. And we can readily see how the wearing of such means of permanent identification might be of much service in arousing a spirit of fellowship that would be helpful in bringing the members of the Association closer together. "It would serve to fix attention and direct thought to the interest of the Association during the intervals between the annual meetings and would prove suggestive of matters pertaining to its growth and development." To meet this requirement I herewith send you for consideration and adoption what is believed to be an appropriate gold and enameled finished emblem. Please observe that the device is in the form of a circular shield, having for its central feature a spear-pointed cross, opposite to the arms of which are the initial letters of "Members of American Medical Association." The circular shield and spear-pointed cross typify the protective armor of the period in which medicine had its origin. The cruciform center not only typifies the great advancement of the profession during the Christian era, but was also the ideographic sign or symbol of life and of the "Healing Art" in ancient Egypt, Greece, Rome and other nations of the greatest antiquity. The initial letters and enameled National colors (red, white and blue), sufficiently symbolize the Nationality of our Association. For these reasons it is believed that the design represents the origin, history, traditions and province of our profession, as well as National character of our organization in the fullest sense, and that the emblem constantly worn as an ornate coat lapel button (or scarf pin), would serve at all times and upon all occasions throughout the world as a distinctive method of social and professional recognition, thus securing the many advantages resulting from this identity.

In order that this badge proposed for the exclusive use of members of the Association should not be obtained or worn by any one except a member of the Association, I have obtained letters patent for the leading feature of the design which confers the exclusive right to make, use and sell the emblem throughout the United States and Territories thereof, and I desire it to be furnished to members only, through the official representative of the Association.

I further agree that in case this badge is adopted and it is desired by the executive committee that the patent right in it become the exclusive property of the Association to assign and transfer my whole right, title and interest in and to the said design for the badge and in and to the letters patent therefor aforesaid, as well as in and to the tools for manufacturing the aforesaid badge, now in the hands of Irons & Russell, of Providence, Rhode Island, and herewith send the legal papers necessary to such agreement, as well as a written proposition from the aforesaid Irons & Russell to manufacture the insignia, either in enameled rolled plate or solid gold, on unusually reasonable terms that will only confer considerable revenue to the Association.

Hoping that the foregoing proposition will meet with favorable action in securing the adoption of this emblem as a permanent badge by the Association during its present session.

Yours very truly,

RICHARD FRENCH STONE.

Referred to the Business Committee.

Dr. W. W. Keen of Philadelphia offered the following resolution:

Resolved, That a committee of five be appointed by the President, at his leisure, to co-operate with similar committees from other bodies to consider the desirability of formulating plans for the dissemination of knowledge of the value of experimental research in the progress of the science and art of medicine.

Seconded by Dr. Dudley S. Reynolds and referred to the Business Committee.

Dr. William H. Humiston of Cleveland, Ohio, read the report of the special committee on National legislation to the Ohio State Medical Society, May 5, 1898, as follows:

To the President and Members of the Ohio State Medical Society:

GENTLEMEN:—Your committee on National legislation appointed in response to the overture of the New York State Medical Society, has awaited the call of the committee of that society for a meeting in Washington to perfect a National organization, but so far no call has been received. Copies of the resolutions of this society anent the antivivisection bill of Senator Gallinger, still pending, were sent by your chairman to Dr. Busey, chairman of the District Committee of the District of Columbia, and likewise to Senators Foraker and Hanna. Your committee received a reply from Senator Foraker, and a promise to give your request a favorable consideration, but no reply has so far been received from Senator Hanna. The District Committee, however, caused your resolutions to be printed and placed in the hands of every member of the Senate. Apparently, if we may judge from the circular letter sent out recently by Dr. Howard Kelly of Baltimore, Senator Gallinger is still obstinate in his determination to override the all but unanimous sentiment of the medical profession, and to push the enactment of his mischievous measure into law, but up this time, owing, in no small degree, to the efforts of the Society, he has not yet succeeded in bringing it to a vote, but the antivivisectionists are persistent; they have ample means and time at their disposal; they have able and influential advocates resident in Washington, and the medical profession must also have its men on the ground, acting with full authority delegated to them in order to counteract the effects of the so-called humane organizations to hamper and hopelessly cripple physiologic and biologic investigation in the Government laboratories and in the Medical Schools of the District of Columbia.

It seemed to your Committee, last year, that the New York plan provided for too large a body—a body, which from its very size, would prove too unwieldy for prompt and effective work—but the need of a body which shall authoritatively represent the organized medical profession upon those matters of legislation regarding which the medical profession alone has the requisite training to speak with the proper authority, becomes increasingly evident, and your Committee begs leave to submit the following plan of organization for the consideration of the Society.

1. That the AMERICAN MEDICAL ASSOCIATION be requested to appoint a standing committee of three on National legislation; one member to be a resident of Washington; one, of Baltimore; and one, of Philadelphia. A Committee so located could be called together at Washington on short notice, and appear before the committee of Congress at any time.

2. That each State Society of legally qualified practitioners of medicine be requested to appoint a committee of one on National legislation; such committee to keep himself in communication with the Senators and Representatives from his own State, so that they may be always kept in touch with the medical profession concerning matters of sanitary and medical legislation.

3. That a joint meeting of the Committees of the AMERICAN MEDICAL ASSOCIATION, and of the committeemen of the several States be held in Washington, subject to the call of the Committee of the AMERICAN MEDICAL ASSOCIATION. The purpose of that meeting would be to give opportunity for each State committeeman to personally interview the Representatives and Senators from his own State, and for the committee as a whole, or by sub committees, to appear before the various Congressional committees to set before them authoritatively the sentiment of the medical profession regarding pending legislation, and to urge the passage of measures upon which the medical profession of the Nation have already agreed, and to which they have already given support by formal action. Meeting thus on the ground and consulting together, the members of such joint committee would, moreover, become better cognizant of matters upon which the medical profession ought to take action, and by embodying such matters in their annual reports to their respective societies, the sentiment of the medical profession as a whole would be promptly and authoritatively declared. We should then begin to act as a unit in matters of National legislation affecting the sanitary interests of the people as a whole.

4. That the necessary expenses of these committeemen be borne by their respective societies.

In conclusion, your committee would recommend further the adoption of the following resolutions:

Resolved, That we again enter our earnest protest against Senate Bill No. 1063, entitled "A Bill for the Further Prevention of Cruelty to Animals in the District of Columbia," for the reason that existing laws amply provide for the prevention and punishment of any real cruelty to animals which may

be proven to occur within the District, and because the physicians and scientists of the District have not so conducted themselves in the past as to warrant the system of irresponsible espionage authorized by the bill, and further, because the paramount interest of the sick and afflicted demands that the medical profession shall have liberty to investigate the nature and treatment of disease, free from cumbersome and vexatious restrictions, such as are provided in the measure in question.

2. That we again urge upon Congress the necessity of thorough inspection, by a medical officer of the United States, of all immigrants and their baggage, before they embark for this country, in order that the importation of contagious and infectious filth diseases may be more effectually prevented.

3. That the Secretary of this Society send a copy of these resolutions to each Senator and Representative in Congress from Ohio, and of the latter resolutions to the chairman of the committee on commerce and on immigration of both House and Senate.

Respectfully submitted. L. B. TUCKERMAN,
RUFUS B. HALL,
A. M. BLEILE,
Committee.

The report was recommended for adoption by the Business Committee, and unanimously adopted by the State Society.

Referred to the Business Committee.

Dr. H. A. Hare introduced the following resolution:

WHEREAS, In time past circumstances have occurred which have deprived this Association of the presence and co-operation of many members of the profession of high standing who have contributed much to the advance of medicine and surgery.

Resolved, That the AMERICAN MEDICAL ASSOCIATION invite the New York Medical Society, the New York County Medical Society, the New York Academy of Medicine and other societies of good and regular standing to send delegates to this Association who will be received and accredited upon proper credentials from the officers of such societies.

Resolved, That all actions and ordinances of this Association contrary to this resolution in spirit or letter are hereby rescinded.

Referred to the Business Committee.

The Permanent Secretary announced the Committee on Nominations, as follows:

Alabama—H. A. Moody. Arkansas—J. H. Southall. California—H. B. Ellis. Colorado—J. T. Eskridge. Connecticut—T. D. Crothers. District of Columbia—H. L. E. Johnson. Georgia—E. T. Connelly. Illinois—T. J. Pitner. Indiana—J. H. Oliver. Idaho—E. E. Maxey. Iowa—W. D. Middleton. Kansas—James A. Lane. Kentucky—J. N. McCormack. Louisiana—Randell Hunt. Maine—M. C. Wedgewood. Massachusetts—H. O. Marcy. Maryland—J. B. Blake. Michigan—H. O. Walker. Minnesota—A. J. Stone. Missouri—I. N. Love. Montana—C. K. Cole. Nebraska—G. H. Simmons. New Jersey—Alexander McAllister. New Mexico—W. R. Tipton. New York—E. D. Ferguson. North Carolina—J. A. Burroughs. North Dakota—H. Wheeler. Ohio—J. E. Cook. Oregon—J. S. Moore. Pennsylvania—H. M. McConnell. Rhode Island—E. D. Clark. South Carolina—J. L. Dawson. Tennessee—G. C. Savage. Texas—John O. McReynolds. Utah Territory—S. Ewing. Vermont—E. R. Campbell. Virginia—L. B. Edwards. West Virginia—A. L. Huff. Washington—J. B. Eagleson. Wisconsin—W. H. Earles. Wyoming—R. Harvey Reed.

United States Marine Hospital Service—J. M. Gassaway.

The Army and Navy of the United States—Drs. W. P. Munn and A. L. Gihon.

Alaska, Arizona, Delaware, Florida, Indian Territory, Mississippi, Nevada, New Hampshire, Oklahoma Territory and South Dakota are not represented.

The Permanent Secretary read telegrams from Drs. Nicholas Senn, Donald Maclean and F. H. Wiggin, regretting their inability to be present.

The following communication was read from Dr. Horner relative to the Medical Aid Association:

LIST OF SECRETARIES OF STATE MEDICAL SOCIETIES.

I. R. Wellington, District of Columbia; I. R. Jordan, Alabama; G. A. Archman, Wheeling, W. Va.; W. F. Amos, Portland, Ore.; I. W. Cokenower, Des Moines, Iowa; D. C. Hawley, Burlington, Vt.; W. G. Townsend, Baltimore, Md.; N. E. Wordin, Bridgeport, Conn.; Ignatius Donelly, St. Paul, Minn.; F. W. Goss, Roxbury, Mass.; P. W. Tomlinson, Wilmington, Del.; C. D. Smith, Portland, Me.; W. C. Riddell, Helena, Mont.; F. T. Rogers, Providence, R. I.; Steele Bailey, Stanford, Ky.; C. R. Atchison, Nashville, Tenn.; G. H. Simmons, Lincoln, Neb.; T. Hubbard, Toledo, Ohio; W. F. Cheney, San Francisco, Cal.; F. H. Coe, Seattle, Wash.; H. A. West, Galveston, Texas.

The above list of Secretaries of twenty-one States of the Union is made in accord with the resolutions unanimously adopted and endorsed by the Medical Society of Pennsylvania at the meeting of the AMERICAN MEDICAL ASSOCIATION in Philadelphia, viz:

Your committee would respectfully recommend that the Association which will assemble at Denver, Colo., will appoint a sub-committee and nominate a President of an American Medical Aid Association, Secretary, Treasurer and Corresponding Secretary, and will invite Fellows of the AMERICAN MEDICAL ASSOCIATION to contribute a sum of two dollars per annum to raise a sum to be used for the relief of disabled physicians and the widows and orphans of said Fellows, members of the American Medical Aid Association, when application is made for such relief. Respectfully submitted by Chairman of Committee. FREDERICK HORNER, M.D.

May 13, 1898. P. A. Surgeon U. S. Navy (Retired).

Dr. L. J. Lautenbach of Philadelphia offered the following resolution:

WHEREAS, Errors in Public School Text-books treating of Physiology, Hygiene, Chemistry and other subjects allied to medicine are prone to cause not only misapprehension and doubt but may occasion serious damage to the life, health and welfare of the community, and it having been proven that such errors exist in greater or less number in such works, therefore be it

Resolved, That the President of the AMERICAN MEDICAL ASSOCIATION appoint a committee of five who shall be empowered to examine all such works and finding such errors communicate with the authors and publishers of the same with the view to their elimination and report their results to the society annually.

Referred to the Business Committee.

Dr. Marcy of Boston, offered the following:

Resolved, That the Secretary hereby request the various State medical societies to so change the date of their annual meeting so as not to conflict with the date of the annual meeting of the AMERICAN MEDICAL ASSOCIATION.

Seconded and carried.

Dr. W. H. Sanders of Mobile, Ala., offered resolutions in regard to the public health, which were referred to the Business Committee.[1]

At the conclusion of the resolutions, Dr. Sanders said: Mr. President, I move the adoption of these resolutions as an expression of the opinion of this body upon the matters which the resolutions bear. Seconded and carried.

Dr. William Bailey of Louisville, Ky.—I have a short preamble and resolution which I desire to read and ask their reference to the Business Committee.

WHEREAS, The business of the Association has increased so greatly that it is difficult to have it all performed in a satisfactory manner under the existing arrangements;

WHEREAS, New lines of operation have been opened which it is desirable to follow;

WHEREAS, It is believed that with an active Secretary, who could devote his whole time to the work, very material advance could be made in extending the operations and increasing the usefulness of the Association, with a great increase in its membership; therefore, be it

Resolved, That a General Secretary be appointed by the Business Committee at a salary not exceeding $3000 per year, who, under the direction of the Business Committee, shall forward the interests of the Association in every way possible.

Resolved, That the present Permanent Secretary be retained with the title of Honorary Secretary, with the present salary.

Resolved, That the Business Committee be directed to consider the matter and report to the Association in regard to the feasibility of the plan proposed.

Referred to the Business Committee.

Dr. George M. Gould of Philadelphia, offered resolutions as follows, which were referred to the Business Committee:

WHEREAS, The establishment, organization and filling of public medical libraries is a means of vast and increasing importance both for the preservation of medical literature and the progress of medical science; and

WHEREAS, There are at present but very few such libraries in the United States, and of these, the great majority are in a sad state of imperfection and inefficiency; and

WHEREAS, Most valuable literature is wasted because of the non-existence or imperfection of such libraries; it is therefore

Resolved, That the AMERICAN MEDICAL ASSOCIATION unanimously approves of any ethical and legitimate methods of encouraging the organization, perfection and support of public med-

[1] These resolutions have not been received by the JOURNAL.

ical libraries in all the cities, towns and villages of the United States, and earnestly urges the members of the Association to aid in the formation and organization of such libraries; also

Resolved, That the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION be sent gratis to the membership libraries of the Association of Medical Librarians, or to other libraries that may be recommended by the Executive Committee of said Association.

Dr. H. A. Hare of Philadelphia—Mr. President, I rise to a point of order.

The President—Please state your point of order.

Dr. Hare—In your decision concerning an important resolution which I offered a few minutes ago, the resolution was referred to the Business Committee. As far as I can learn, sir, that reference is incorrect.

The President—Do you appeal from the decision of the Chair?

Dr. Hare—I do, sir.

The President—Dr. Hare of Philadelphia, appeals from the decision of the Chair in regard to the reference of his motion or resolution. The question before the Association is, gentlemen, shall the decision of the Chair be sustained? Those who favor sustaining the Chair in reference to the resolution offered by Dr. Hare in regard to the New York State Medical Society will signify by saying aye; contrary minded, no.

[The Chair was sustained in his ruling.]

Dr. H. M. McConnell of Pennsylvania—I move you, sir, that Dr. Hare's resolution be taken from the Business Committee. Seconded. (When the Chair put the motion of Dr. McConnell the ayes were so feeble that a division was called for. The result was that 104 were in favor of taking the resolution from the Business Committee, and 116 against.)

The Permanent Secretary read the following resolution, offered by Dr. Albert L. Gihon:

Resolved, That the Permanent Secretary as soon as possible after adjournment be requested to communicate with the Secretaries of State and Territorial medical societies to nominate their representative members on the Rush Monument Committee, and to report as soon as possible in order that the names may be announced in the JOURNAL of the ASSOCIATION. Referred to Business Committee.

The President—The next thing in order is the disposition of amendments to the Constitution and By-Laws. The first one to take action on is that offered by Dr. W. L. Wills, and I will ask the Secretary to read it.

The Permanent Secretary read the following: Article IV.—Officers. Amend to read: "Each officer shall hold his appointment for one year, and until another is elected to succeed him."

Dr. W. L. Wills of Los Angeles, Cal.—Mr. President, I wish to offer an amendment to the amendment to make the matter more easily and clearly understood, so as not to interfere with the tenure of office of members of the Judicial Council or of the Board of Trustees, whose term of office is provided for in another place in the Constitution. I would like to insert these words: "Each officer, except members of the Judicial Council and Board of Trustees, shall hold his appointment for one year, and until another is elected to succeed him." Seconded.

Dr. L. Duncan Bulkley of New York—May I ask whether this amendment to the amendment affects the members of the Business Committee.

Dr. Wills—There is no intention of interfering with the tenure of office of any permanent committee.

Dr. William T. Bishop: Mr. President, no matter what the object intended to be accomplished may be, there is one thing in regard to the written letter, namely, that it only means what is written, and not what is understood. The offerer of this amendment does not understand what he wants himself nor does he understand, it seems to me, his own amendment which he made to his previous amendment. I would suggest, to make it definite and to prevent any confusion, that the names of the President, Vice-Presidents, Secretary and Treasurer be included. Let the members understand what we are voting for. They are the officers it is intended to hit. I am opposed to the amendment unless it is expressed in that way.

The President—Are you ready for the question of the amendment to the amendment? Your vote will carry with it the suggestion offered by the gentleman from Pennsylvania, who

Dr. Daniel R. Brower of Chicago—The Business Committee excepts the Judicial Council, the Board of Trustees and the Business Committee.

has just appointed a Prize Committee. What becomes of it?

The President—That will depend upon what action is taken.

Dr. E. D. Ferguson of Troy, N. Y.—Hardly any of us know what we wish to do in regard to this matter, and I therefore move that the whole question be laid upon the table. Seconded and carried.

The President—The next item is the amendment offered by Dr. H. B. Ellis of California, which I will ask the Secretary to read.

The Permanent Secretary then read the following:

Article IX.—Conditions for Further Representation. "Any State or local medical society, or other organized institution, whose rule, regulations and Code of Ethics agree in principle with those of this Association, may be entitled to representation on the advice or agreement of the Judicial Council."

Dr. Dudley S. Reynolds—I move the adoption of the amendment. Seconded.

Dr. X. C. Scott of Cleveland, Ohio—This is a very serious question for the Convention to consider. In the event of our meeting in large cities, it will be possible to form enough medical societies where they can send enough delegates to control the legislation of this body. Mr. President, this question has come up year after year, and each year it has been voted down. Therefore, Mr. President, I move that this amendment be laid upon the table. Seconded and carried.

The following amendment was read and adopted:

"That the name of Section on Dental and Oral Surgery be changed to that of Section on Stomatology."

The Permanent Secretary read the following amendment offered by Dr. L. Duncan Bulkley:

"That all new business shall be introduced not later than the third day of the session."

Dr. X. C. Scott—I move its adoption. Seconded.

Dr. W. T. Bishop—I move as an amendment that the following words be inserted, "unless there is objection." This will accomplish the same thing and will keep us from being tied up. Seconded.

The motion as amended was put and carried.

Dr. J. H. Musser of Philadelphia then read the Oration in Medicine.

On motion, the Association adjourned until 11 A.M. Thursday.

JUNE 9—THIRD GENERAL SESSION.

The Association met at 11 A. M., and was called to order by the Fourth Vice-President, Dr. Happel of Tennessee.

The Permanent Secretary read the minutes of the previous general sessions, at the conclusion of which Dr. A. L. Gihon said: I certainly object to the statement in the minutes that I offered the resolution which the Secretary says I did. The resolution offered by me concerned another matter which he has not read. The resolution I offered was to this effect, that the Secretary communicate with the secretaries of the State and Territorial societies with respect to nominating representative members for the Rush Monument Committee, and that those names be published in the JOURNAL of the Association.

The President—I believe Dr. Lane, of Kansas, offered a resolution making Dr. Munn of the army, and Dr. Gihon of the navy, members of the Nominating Committee. The Secretary will make these corrections.

The President—The next matter to come before the Association is the report of the Board of Trustees, which will be read by Dr. Garcelon of Maine.

Dr. Garcelon then read the report as follows:

REPORT OF THE BOARD OF TRUSTEES.

Members of AMERICAN MEDICAL ASSOCIATION: In submitting the present report at the 49th annual meeting of the AMERICAN MEDICAL ASSOCIATION, and the 15th year since the change from a yearly publication of the Transactions of the Association to the establishment of a weekly Journal, entitled "THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION," the Trustees take pleasure in congratulating you upon the success which has attended the Association in whatever light examined. Organized originally especially for the purpose of elevating the standard of medical education, it has steadily kept that object in view, and we have great pleasure in noting that a large number of our leading medical institution have not only lengthened the curriculum of their instructions, but have demanded higher qualifications of those preparing to enter the ranks of the profession. The importance of a liberal education is becoming more and more noticeable, and we trust that the day is not far distant when every young man who seeks to qualify himself for the most important position that the needs of human society demand, will not only be able to acquire a satisfactory preliminary education, but to pass such an examination as only a first-class college course may require. Aside from this, there can probably be no better method desired in a country of so vast an extent as this to cultivate friendly social relations and that *esprit du corps* which ought to exist between the members of every liberal profession, and we shall be sorry to see the day when these annual gatherings come to be looked upon with indifference.

In 1883, when the experiment of publishing a weekly medical journal as the organ of the Association was suggested, there was quite a large minority of our members who were decidedly opposed to such a change. They thought the annual volume of the Transactions was all that could be profitable, and besides we were feeble in membership, and without funds to purchase material, or meet the current expense of rent, type-setting, proof work, stitching and other necessary machinery or material, saying nothing of paper and type, without which nothing could be accomplished. Aside from this, where was the enterprise to be started? The members east of the Alleghanies thought they occupied the citadel of medical lore, and that as Washington was the seat of government it would, and by all means it should, be the point in that vicinity. On the other hand it was urged as the Association was of a national character, a more central point should be selected, and all things considered, either Chicago or St. Louis should be selected and the fact that Chicago took the lead in point of population and was likely to do so for a period of years at least, that city was selected for the purpose.

The first number of Vol. 1 was issued July 1, 1883, and 3,500 copies of that date were struck off, being largely in excess of the membership of the Association, hoping by sending copies to physicians outside of membership, many might be induced to become members, or at least subscribers for the JOURNAL. At that time the membership of the Association, including both delegates and permanent members, did not exceed 1,500. For the five succeeding years the increase of membership was not large, there being during the year 1887 only an increase of 161. Since that time, that is, during the past decade, the increase of membership, as well as of the general circulation of the JOURNAL has rapidly increased.

The circulation for the year 1897 was:

January 2	7,600	July 3	8,600
January 9	7,700	July 10	9,000
January 16	7,800	July 17	8,900
January 23	8,500	July 24	8,950
January 30	8,500	July 31	9,000
February 6	8,500	August 7	9,000
February 13	8,000	August 14	9,100
February 20	8,500	August 21	9,025
February 27	8,700	August 28	9,050
March 6	8,700	September 4	9,000
March 13	8,700	September 11	9,000
March 20	8,700	September 18	10,050
March 27	8,600	September 25	10,100
April 3	8,400	October 2	10,200
April 10	9,500	October 9	10,200
April 17	8,500	October 16	10,200
April 24	8,750	October 23	10,000
May 1	8,750	October 30	10,000
May 8	8,600	November 6	10,000
May 15	8,600	November 13	10,000
May 22	8,500	November 20	10,000
May 29	8,600	November 27	10,500
June 5	8,500	December 4	10,700
June 12	9,000	December 11	10,700
June 19	8,300	December 18	11,000
June 26	8,400	December 25	11,000
	220,900		253,275

First six months of 1897 weekly average was 8,496; second six months of 1897 weekly average was 9,741; total weekly average for year was 9,118½.

The growth since last autumn has been remarkable, thus:

The regular weekly issue of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION from October, 1897, to May, 1898 inclusive, a period of eight months, was as follows:

WEEKLY EDITION.		WEEKLY EDITION.	
October 2	10,200	February 5	10,000
October 9	10,200	February 12	9,800
October 16	10,200	February 19	10,400
October 23	10,000	February 26	9,850
October 30	10,000		40,050
	50,600	March 5	11,000
November 6	10,000	March 12	10,200
November 13	10,000	March 19	10,500
November 20	10,000	March 26	10,950
November 27	10,500		42,650
	40,500	April 2	11,000
December 4	10,700	April 9	11,000
December 11	10,700	April 16	10,800
December 18	11,000	April 23	10,500
December 25	11,000	April 30	10,500
	43,400		53,800
January 1	9,600	May 7	10,500
January 8	9,700	May 14	10,425
January 15	9,700	May 21	10,500
January 22	9,700	May 28	10,475
January 29	9,700		41,900
	48,400		178,400
	182,900		

Grand total, 361,300; weekly average, 10,323.

The appearance and general character of the JOURNAL is highly satisfactory, but we are by no means content without showing continual advancement. We have carefully examined other weekly medical journals published in this country and have compiled the following instructive table:

FIVE WEEKLY MEDICAL JOURNALS—SIX MONTHS' ISSUE.
(Comparative statement of matter published.)

July to December, 1897.	Original articles.	Separate titles.	Illustrations.	No. pages. Reading.	No. pages. Adv.	Composition—ems.
Boston Med and Surg. Jour	135	829	72	692	872	1,209,088
New York Medical News	137	1,139	116	838	480	3,097,717
New York Medical Journal	167	1,076	173	888	1,096	2,303,316
New York Medical Record	187	1,433	100	932	1,095	3,644,849
Journal American Med. Association	280	1,510	226	1,272	692	5,313,594

This table shows conclusively that the members receive more for their money in amount of reading matter than in any other journal, and we may without fear of unfavorable result compare our JOURNAL in point of literary and scientific qualities to any regular weekly published in any part of the world.

Viewed as a newspaper, it now undertakes to publish everything in current news that will interest the physician, assist him in his daily work and defend him against outside malice. The legitimate expenses of such a journal must necessarily be large, and as its pages increase they will annually become larger. The rule of the ASSOCIATION whereby all proprietary articles must publish their formulæ, containing the name and amount of each ingredient every issue, causes a loss to the JOURNAL of from $8,000 to $10,000 annually, a loss which other journals are not compelled to sustain. That the JOURNAL has succeeded and continues to succeed in spite of this immense limitation of advertising, is complimentary to the ability, tact and foresight of the editor, who, under the direction of this Board, made the JOURNAL more and more successful each year.

The financial statement is as follows: Report of the JOURNAL for the fiscal year ended Dec. 31, 1897.

RECEIPTS.

Cash on hand Jan. 1, 1897	$ 1,694.82
Dec. 31, Advertising	18,627.61
Dec. 31, Subscriptions	4,389.68
Dec. 31, Reprints	917.15
Dec. 31, Collections through bank	1,364.34
Dec. 31, Requisitions on Treasurer	20,000.00
Dec. 31, Cash sales	146.47
	$47,140.07

DISBURSEMENTS.

Dec. 31, Pay Roll	$13,374.37
Dec. 31, Postage	3,030.60
Dec. 31, Editorial accounts	4,365.74
Dec. 31, Commissions	763.66
Dec. 31, Office salaries	7,880.76
Dec. 31, Paper	9,636.15
Dec. 31, Ink	279.95
Dec. 31, Telephone	175.00
Dec. 31, Benzine and oil	22.70
Dec. 31, Advance news	188.76
Dec. 31, Gas	58.46
Dec. 31, Type	119.54
Dec. 31, Bindery supplies	51.90
Dec. 31, Letter files	11.10
Dec. 31, Stationery	34.25
Dec. 31, Rent	1,500.00
Dec. 31, Electric power	403.26
Dec. 31, Binding	271.55
Dec. 31, Membership transfers	437.50
Dec. 31, Copyright on Journal	20.50
Dec. 31, Repairs to machinery	53.50
Dec. 31, Electrotypes	365.58
Dec. 31, Benzine cans	3.00
Dec. 31, Office fixtures	17.50
Dec. 31, Express	2.00
Dec. 31, Cartage	142.00
Dec. 31, Mimeograph supplies	4.00
Dec. 31, Reporting	569.56
Dec. 31, Press rollers	78.36
Dec. 31, Cutter knife	28.00
Dec. 31, Check returned	119.69
Dec. 31, Folder Supplies	9.35
Dec. 31, Back numbers of Journal	8.60
Dec. 31, Toilet supplies	15.00
Dec. 31, Grinding cutter knives	21.60
Dec. 31, Medical society lists	4.00
Dec. 31, Telegrams	8.49

Dec. 31, Agents' traveling expenses	109.30
Dec. 31, Subscription rebates	13.95
Dec. 31, Advertising	31.00
Dec. 31, Wipers	11.25
Dec. 31, Check perforator	10.00
Dec. 31, Postal deposit	5.00
Dec. 31, Insurance	85.00
Dec. 31, Taxes	165.98
Dec. 31, Moving machinery	37.60
Dec. 31, Miscellaneous expense	202.60
Total expenses (vouchers deposited with Treasurer)	$25,637.67
Check returned (bank voucher)	7.50
Balance on hand Dec. 31	1,494.90
	$27,140.07

The following is an inventory of the JOURNAL property.

Mechanical Department.—Three Miehle cylinder presses, 1 Crocker Wheeler 10 H. P. motor, 1 pony Gordon press, 1 Sheridan auto. cutting machine, 2 folding machines, 4 imposing stones, 1 stitching machine, 100 make-up galleys, 14 case racks, 2 banks (make-up tables), 1 sort cabinet, 1 type cabinet, 3 type racks, 2 kitchen tables, 4 bindery tables, 11 high chairs, 9 kitchen chairs, 1 high back oak chair, 4 fonts "body type" about 4,000 lbs., 5 pr. new chases, 1 proof press, 90 fonts job type, 200 mailing galleys, 1 pr. large scales, 1 walnut desk, 150 lbs. leads, 1 oak wash stand.

Office Department.—Two roll top desks, 2 flat top desks, 1 letter filing cabinet, 1 oak book case, 2 "Victor" safes, 6 revolving office chairs, 1 typewriter desk, 1 wire rack for exchanges, 1 P. H. box case, 1 12-ft. walnut table, 1 dictionary stand, 11 oak chairs, 2 Munson typewriters (one poor).

GENERAL FINANCIAL STATEMENT.

The report of the Association Treasurer shows the total receipts for the year ending Dec. 31, 1897, to have been $64,522.78 and the expenditures $25,637.67, and the balance $14,092.72. The balance on hand was so satisfactory in amount that the Board directed an additional $10,000 to be placed to the credit of the investment fund created by the Association in 1896 for the purpose of providing a permanent building for the home of the JOURNAL. This fund now amounts to $13,000.00, and if the Association continues to be economical, we shall very soon reach the amount required to erect a safe and convenient building adapted for the purposes of the JOURNAL for many years to come. The Trustees were very materially aided in the accomplishment of this very desirable result by the generous action of the Philadelphia profession, who by their local Committee of Arrangements returned the $1000 appropriated for places of meeting of the General Sessions and the Sections.

INCORPORATION.

In accordance with the recommendation of this Board, approved by the Association at its last session, the Board of Trustees has become an incorporated body, and now have a definite standing as a legal incorporation.

In conclusion, the Board respectfully recommend that each member of the Association make renewed effort to help along the growing membership, by encouraging subscriptions, and membership applications, in order that by increased circulation and support we may still further extend the good influences of the Association for the advancement of useful knowledge, and the general welfare of the profession.

A. GARCELON,
J. M. MATHEWS,
I. N. LOVE,
G. C. SAVAGE,
JAMES T. PRIESTLEY,
JOSEPH EASTMAN,
Board of Trustees.

Dr. Dudley S. Reynolds of Louisville—I move that the report of the Board of Trustees be received, printed in the JOURNAL, and a vote of thanks extended to Dr. Garcelon for having presented it. Seconded and carried.

The President—Dr. Gihon desires to make a one-minute report, and we will now listen to him.

Dr. A. L. Gihon—I will read from my seat. I shall not occupy more than two or three minutes of your time. I am requested by the donors on part of the Rush Monument Committee to make the following statement: I have received from Dr. Haggard of Tennessee, on account, $130; from Dr. Wingate of Wisconsin, $78 on account; from Dr. Humiston of Ohio, $336.25, the balance will be given at Columbus; from Dr. Cole of California $110; from Dr. Cantrell of Texas, $36.50; from Dr. Hare of Pennsylvania, $186.50, in addition to the $2000; from Dr. Wordin of Maine, $100 on account. I have nearly $12,000 in my hands toward the Rush Monument Fund. With all respect to my friend, Dr. Connor of Detroit, this is not rot, but fructifying seed, which has borne good fruit. (Applause.)

The President—The next item will be the report of the Committee on Public Health, which will be read by the Chairman, Dr. U. O. B. Wingate of Milwaukee, Wis.

Dr. Wingate, as Chairman, then read the following report:

REPORT OF SPECIAL COMMITTEE ON DEPARTMENT OF PUBLIC HEALTH.

Mr. President and Members of the Association—In 1891 the following resolution was adopted:

"*Resolved*, That the President of this Association appoint a Committee of five to memorialize Congress, at its next session, on the subject of creating a cabinet officer to be known as a medical secretary of public health." This Committee was appointed and has been in existence ever since. Its personnel has been changed from time to time. In the argument set forth preliminary to the formation of this Committee it was claimed that "there is no other profession that excels us in positive efficiency to sustain public order, comfort and happiness. We possess vast capacity for the direction of society and promotion of human happiness. There is nothing in the body or mind of man that is not the purview of medical practice. We are laboring unceasingly to assuage all illness of individuals and communities. At this time the profession is manifesting, in a higher spirit than ever before, the purpose of suppressing contagious and infectious diseases. This work was begun by Jenner a century ago, and the awful scourge of smallpox has been stamped out wherever vaccination is compulsory. We have now assumed the task of suppressing all the terrible diseases that desolate the world. There are infectious and epidemic diseases that move about the world almost periodically, which we need not particularize. They are often the products of squalor and wretchedness of peoples, and are spread far and wide about the lines of commerce. These invisible foes of human health infest the air, water, and the very food we eat. From the grosser foes of human health, cold, heat and tempest, men have power to defend themselves, but in regard to these invisible agents of suffering and death for want of higher knowledge they are largely helpless. In their despair they turn to medical science for help, unwilling to trust in the brute law of the survival of the fittest.

"Governments, in a certain way, have always done something to aid medical men in their endeavors to stay pestilence and save the afflicted, but never adequately. They have generally refused to make the medical profession a permanent integral part in the administration of the State, that is, in the making and execution of sanitary laws."

This argument goes on and defines what laws are necessary for the full employment of our beneficent profession, and affirms that all the measures for public relief on these important subjects should be under the guidance of medical men. It sets forth that the medical profession holds itself ready, not only to diminish the fearful destruction of life now going on, but ultimately to destroy the contagia that cause it. It refers to the latest addition to the cabinet of the President, that of secretary of agriculture, and sets forth that a secretary of public health will be of the greatest importance to the welfare of the nation, and finally the "unification of all things relating to public hygiene in the States through the aid of the State boards of health will give a solidity and usefulness to the practice of medicine never hitherto attained."

In 1892 this Committee made its first report under the chairmanship of the late and lamented Dr. C. G. Commegys. A "petition to the extent of eight thousand copies was printed in pamphlet form and issued within the covers of the JOURNAL of the Association; a large number were sent out at the request of State boards of health and others; a sufficient number placed in the hands of members of Congress. Copies were also sent to all medical schools of the Union, and a large number of favorable responses were received from physicians in the States, east, west, north and south; from some of our eminent schools of learning, and from State boards of health everywhere.

"The petition, with the Bill formed to carry out its purposes, was presented in the first week of the session of Congress, in the Senate by the Hon. John Sherman, and in the House by the Hon. John A. Caldwell, both of whom warmly expressed their belief that the measure is one of great public importance and that they would do all they could to secure its adoption."

The chairman of the Committee went to Washington and was invited to meet the committees of both Houses for a conference on the subject. The report states that the chairman believes, "that in the House committee a favorable impression was made, but in the Senate committee I found the chairman quite unfavorable to it, because, and he gave no other reason to me, the present Congress would do nothing to

increase departmental expenditures." The chairman made a long and full argument before these committees, but the Bill did not pass.

In 1893, the Committee reported again, and in the report the following appears: "The members of the House committee seem disposed to favor such a department, the chairman of it saying that he thought the health of the people was certainly of as much consideration as that of cattle, which was so expensively investigated by the agricultural department. But the first session of the Fifty-second Congress adjourned and no report had been made by either House. In the meanwhile the development of cholera in Europe, and the menace of its transportation to our shores lead to a renewed activity and grant of power to the quarantine office that made it impossible to secure any further action of Congress on the proposition to establish a department of public health. Your Committee entertains most favorable opinions in regard to the activity and intelligence which is displayed by the Marine-Hospital Service for the preservation of our seaports from epidemics of foreign origin, and for its regulations to prevent their transportation from State to State along our commercial lines, but it does not seem reasonable that all the benign measures of preventive medicine should be administered by a single organization, whose function relates to so limited a field in comparison with one which relates to the demography and hygiene of cities, towns and agricultural regions of the country at large, and the supervision of which would be far more intelligent and effective by a medical secretary of state than by the secretary of the treasury."

"The difficulties attending the introduction of Bills into Congress are very serious. After the first reading they are referred to committees, where the delays are great. To be successful it requires a constant watchfulness of their progress, and members of a committee grow weary of pleas for a favorable report."

The following resolutions in addition to the report were presented: "*Resolved*, That this Association will continue its efforts to secure the creation of a department and secretary of public health at Washington, D. C. *Resolved*, That the President of the Association appoint ten members, representing different regions of the United States, who shall prepare as early as possible an appeal to his Excellency Grover Cleveland, to lay before Congress in his next annual message a recommendation that a department and a medical secretary of public health is a measure that is calculated to promote in a large way the public welfare. *Resolved*, That this petition shall be presented, as far as may be possible, by the Committee in person."

The report and these resolutions were adopted and permission was granted that the Committee increase their numbers as they might deem necessary.

In 1894, the Committee made a further report in which they state: "In the course of our efforts to secure the passage of our original Bill, which has hitherto, both at the annual session at Detroit and in Milwaukee, been laid before you, and which was introduced into the Fifty-second Congress, in both Houses, in December, 1891, we found that a strong opposition was made to its favorable report from the committees in the Senate and House of Representatives by the chief of the Marine-Hospital Service, because it seemed to him to encroach upon the function of his office as director of quarantine affairs, and that it would greatly embarrass his work. This was not intended at all by your Committee; therefore, as our Bill appeared to lie dormant in the hands of the Congressional committees, and as the dread apprehension of the entrance of Asiatic cholera through our commercial intercourse had so aroused Congress to the necessity of strengthening the quarantine service, making it apparently unnecessary to extend legislation in the direction of public health at that time, we were advised by friends in Congress to cease further efforts until the second session. At the opening of the second session, in December, 1892, it was found that one of our important friends in the House committee was ill, in fact was unable to take his seat at any time during the session. Your Committee then determined to wait the opening of the Fifty third Congress, in December, 1893, for a renewal of our activity. In the meantime the great Pan-American Medical Congress met in Washington in September, 1893, and we took advantage of the assembly of that body of eminent medical men to bring before it the importance of the creation of a department of public health in all governments under the direction of a secretary appointed from the medical profession, who should be on a parity in the cabinet of the President with the secretaries of other departments. Our proposition was referred to the committee on State medicine and, after a most thorough discussion by eminent practitioners of different States, was adopted with but one dissenting voice. Your Committee next, after due consultation, concluded that in order to avert the opposition of the Marine-Hospital Service, it would be wise to reconstruct our Bill so as to leave out any reference to the supervision by the secretary of public health of the quarantine service, merely referring to it as an available source of information for the general purposes of public health, on the same plan as that furnished by Surgeons-General of the Army, Navy, the State Boards of Health, and all municipalities, hospitals and asylums throughout the country. Therefore, we redrafted our petition and Bill in regard to the establishment of the public health department and the secretary of public health, and they have been introduced into the present Congress, in the Senate by the Hon. Mr. Gray of Delaware, in the House by the Hon. Mr. Goodnight of Kentucky, and have been referred to proper committees."

The report also contains the following: "Our success has been greatly compromised by the action of the New York Academy of Medicine in their endeavor to frustrate our movement by the preparation of Bills to obtain action of Congress, to extend in various ways the existing quarantine laws, and to keep the profession under the autonomy of the secretary of the treasury or the secretary of the interior, and their plan has been urgently pressed upon the attention of the State and medical societies, and State boards of health throughout the Union."

The report closes with the following: "It is not probable that any bill can pass at this session of Congress, but the Association should at this time direct that a renewed effort should be made so as to be ready to make the most powerful effort possible to secure the passage of our Bill at the next session. Such consolidated effort can only be made effective by an organized effort in every congressional district in the Union. In conclusion we beg to offer the following resolutions: *Resolved*, That the AMERICAN MEDICAL ASSOCIATION renews its appeal to the Congress of the United States to adopt the Bill now in its possession for the creation of a department and secretary of public health; *Resolved*, That the committee proceed as soon as possible to secure sub-committees in each congressional district of the country to obtain favorable action on the part of their senators and representatives for this measure; *Resolved*, That a committee be appointed to endeavor to secure the friendly co operation of the New York Academy of Medicine; *Resolved*, That a sum not exceeding $400 be appropriated to defray the necessary expenses of the committee in carrying on their work."

In 1895 the Committee reported again, under the chairmanship of the late and lamented Dr. Jerome Cochran, in which he states: "Our facilities for doing the important work entrusted to us have been strictly limited by want of funds, the Association having failed to adopt the resolution offered last year for an appropriation not to exceed $400 to defray the necessary expenses of the Committee, so that such expenses as we have incurred have been paid out of our own pockets." He further states, "That in December some members of the Committee visited Washington for the purpose of ascertaining just what could be done toward pushing our enterprise to a successful result. We found a good many members of Congress who promised us their co operation whenever a favorable time could be found for the consideration of our Bill, but all agreed that it would be impossible to accomplish anything during the continuance of the Fifty-third Congress." In conclusion he adds: "To this end we had prepared a resolution recommending an appropriation, but as this object has been accomplished by the action of the Association on the recommendation of the Section on State Medicine it is not necessary to offer this resolution." The report was received.

In 1896, another report of the Committee was made by Dr. Cochran, in which he states that "The Bill which was prepared for presentation to Congress was extremely crude and indefinite in its provision and gave this proposed high official very little important work to do. It was indeed found to be so defective that last year the effort to have it enacted into a law was abandoned. In the meantime the Marine-Hospital Service, which in 1890 had already been invested with some important health functions, was by the act of 1893 converted into a National Health Department with very large and far-reaching powers and abundant means. It is not called a department of public health, but is a department of public health in fact. Since 1893, until the effort was abandoned last year, our Committee has been engaged in the hopeless and unwise enterprise of endeavoring to induce Congress to establish another department of public health, a very weak and inconsiderable department by the side of a very powerful department. Such an effort could not succeed. Such an effort did not deserve to succeed." In conclusion, he says, "In arranging any scheme of national public health supervision it would seem desirable

that nothing should be done to discredit and weaken the various State boards of health, but that contrarywise the efforts should be to strengthen the State organizations and to foster and facilitate their further evolution. If this principle is conceded it is at once made evident that the national department of public health should act in and through the State boards of health, in co-operation and harmony with them and not outside of them and independent of them. If the national department acts within the States, independently of the State boards, then the State boards become comparatively useless institutions and will fall into disfavor. Some of the State boards are still weak institutions and any rivalry between them and the national department in State work will doom them to speedy destruction. In this direction it would seem that additional legislation is needed, and the simplest plan to reach the desired reconciliation shall embrace two provisions. First that the national department should act within the States by and in co-operation with the State boards. Second, that the head of the national department shall call annually to meet in the city of Washington an advisory council to be composed of one representative from every State board of health. This would bring about mutual understanding and co-operation and reciprocity of action and would virtually constitute a great school of public hygiene. Such a scheme as this would probably command the approval and support of the national conference of State boards of health, which conference is quite as deeply interested in movements of this character as is the AMERICAN MEDICAL ASSOCIATION. At the conclusion of the whole argument we recommend that we be authorized to invite the co-operation of the conference of State boards of health and the American Public Health Association in our favor to have the proposed Bill enacted into a law."

"On motion, duly seconded, the report was accepted, the plan outlined adopted, the Committee continued and enlarged by the appointment of a member from each State."

In 1897, your present chairman reported that it was found impossible to get either the Fifty-fourth Congress or the special session thereof to take any action on such a measure; that he had appointed additional members of the Committee as provided for at the last meeting and that a Bill had been drafted, which was presented. The Committee recommended the continuance of the Committee with powers to have the aforesaid Bill amended to meet requirements, but not to change the general purpose thereof, and to introduce the same into Congress at its discretion. Since that time, your Committee desires to report, that it has been actively engaged in this work.

As soon as the Fifty-fifth Congress convened work was begun to prepare a Bill, or to amend the Bill submitted at the last meeting of the Association, that would meet the requirements and be most likely to pass Congress, and that would receive the support of the greatest number of the medical profession, and also one that would meet with the least opposition. This was found to be a gigantic undertaking. The chairman of your Committee went to Washington and consulted with the best men in Congress who would give him a hearing on the subject, and it was found that the great majority of members of Congress were totally ignorant of the subject and many of them were not inclined to give it the time that was necessary to become familiar with it. Others, however, required time to study it. It was found, however, that it was out of the question to find a member of Congress who would introduce a measure, even, creating a cabinet officer. The President, members of the cabinet and of Congress were opposed to creating any more cabinet offices. It was argued that there were too many cabinet offices now, and if the way was opened by considering our request other organizations would ask for the same, and it was absolutely decided by Congress and the President that this proposition could not be entertained. There was also equal opposition by Congress to creating any independent commission, and the only thing that would receive recognition was a commission or bureau to be under the supervision of some other department. The Bill was drafted and redrafted many times before we could get it in such shape as to receive the support of certain leading members of Congress. The main idea, however, of having a single medical head, to be located in Washington, and for him to have the aid of counsel from members of State health organizations from each State and Territory, as outlined in the report of Dr. Cochran two years ago and adopted by the Association, was steadfastly adhered to throughout by the chairman of your Committee, and the same was incorporated in the Bill that was finally decided upon. This idea was also endorsed by the American Public Health Association at its last annual meeting held in Philadelphia, and it is almost unanimously approved by those who have given the most attention to the question. Your chairman believes that this feature of the Bill is by far the most vital portion of National Health Legislation that we can ask for. Before the Bill was introduced a conference was held between the chairman of your Committee and the Supervising Surgeon-General of the Marine-Hospital Service, with a view of attempting to bring about some compromise in the provisions of the Bill that would avert the opposition of that Service, but such was found impossible, and that Service would only favor the Bill which is known as the Caffery Bill, which only relates to quarantine, leaving out all attention to internal sanitation, which your Committee believes to be of far more importance than quarantine, and gives to that Service autocratic powers to control not only maritime quarantine but to go into any State or Territory and take full charge, without any voice from the local authorities either in making rules or regulations or the enforcement of such rules and regulations as that Service may see fit to adopt. This Bill, which is practically the only opponent now existing in Congress against our measure, gives autocratic power to one man, namely, the Supervising Surgeon-General of the Marine-Hospital Service, to have absolute control over all quarantine, both maritime and interstate. Your Committee found a very decided objection to this measure in Congress; on the other hand, it had some very strong supporters, the supporters believing that the Marine-Hospital Service furnishes the best foundation upon which to build a national health department.

Our Bill was introduced into the Senate by the Hon. John C. Spooner of Wisconsin, and referred to the committee on "Public Health and National quarantine," and into the House by Hon. Theobald Otjen of Wisconsin, and referred to the committee on "Interstate and Foreign Commerce." The Senate committee refused absolutely to hear your Committee, or to give them any opportunity to be heard on the question. They had decided, with one dissenting vote, to recommend the Caffery Bill, which places the quarantine power into the hands of the Marine-Hospital Service, and all other Bills, several of which were before them, were laid aside. The House committee, however, gave the chairman of your Committee a hearing, and he was ably supported at that hearing by Dr. H. B. Horlbeck, the health officer of the city of Charleston, S. C., and Dr. A. H. Doty, quarantine officer of the port of New York. There was a division in this committee and it is doubtful how it will report to the House. In the Senate, however, it is intended that our Bill shall be offered at a proper time as a substitute for the Caffery Bill, and it is believed by Mr. Spooner, who has it in charge, and he is generally recognized as one of the ablest senators in Congress, that it stands a fair chance of passage. It is also believed that the Caffery Bill will not pass either the House or the Senate. During this time your chairman has visited Washington five times, and has been ably supported there from time to time by Dr. C. O. Probst of Ohio, Dr. Horlbeck of Charleston, Dr. Doty of New York and Dr. H. L. E. Johnson of Washington, as well as Dr. Porter, State health officer of Florida, and to whom he desires at this time to return grateful acknowledgement. He has also attended the quarantine convention held at Mobile, Ala., where the question of national legislation was discussed, and argued the question before that convention, and also went before the New York Board of Trade and Transportation, and succeeded in getting that body to support our measure.

Your chairman is pleased to report that he believes that never before has any Bill of this nature, that has been introduced into Congress, received the extensive support that the present Bill has and is receiving. It has the support of the New York Academy of Medicine, the New York Board of Trade and Transportation, the New York Chamber of Commerce and several other large business organizations in the country who are vitally interested in quarantine matters. It has received a great deal of attention from the newspapers of the country and as a general rule has been favored by them. It has, however, received some very bitter opposition by some few medical journals of the country and one sanitary journal, namely, the *Sanitarian*. This publication has been exceedingly bitter and the vials of wrath of its editor have been frequently replenished and poured out profusely, much, undoubtedly to his satisfaction, and greatly to the amusement of those who know his peculiarities. Practically there are but two Bills relating to Public Health before Congress at the present time, our own Bill and the one known as the Caffery Bill, which favors the Marine-Hospital Service, and provides that that Service shall be the health department of the country. The New York Board of Trade and Transportation, a very large and influential business organization, took a great deal of pains to learn the views entertained throughout the country concerning the matter. They addressed personal letters to nearly one thousand professional men, sanitarians and men engaged in trans-

portation and commercial pursuits. These letters contained questions relative to quarantine and solicited the opinion of these men as to the best sanitary legislation that could be asked for. "Hundreds of valuable replies were received to these inquiries and only thirteen of them endorsed the proposition to enlarge the powers of the Marine-Hospital Service. All of these thirteen letters contained the one chief argument that the Marine-Hospital Service was a good nucleus to build a National Health Bureau upon."

"On the other hand, a very large majority of the replies expressed the opinion that the National Government can never hope to create a successful national health organization based upon the Marine-Hospital Service as a nucleus, because in many States the bitter hostility to the Marine-Hospital Service, engendered by its own acts, is so formidable as to preclude any possibility of harmony between it and such State and local authorities. The opinion was that to give the Marine-Hospital Service still more arbitrary powers as proposed in the Caffery Bill, without the obligation to consult or in any way regard the local authorities, would only widen the breach, intensify the bitterness and render resort to force necessary to carry out the Marine-Hospital Service regulations." In a letter addressed to the Hon. Jacob H. Gallinger, U. S. Senator, by the President of the New York Board of Trade and Transportation he states, "The consensus of testimony before our committee was overwhelmingly in opposition to the letter and spirit of the Caffery Bill. It stamped the Bill as narrow and wholly inadequate to meet the very pressing needs of the country. The Caffery Bill exaggerates the importance of quarantine, and makes no other provision for public health protection, while advanced sanitary science pronounces quarantine to be barbarous and obsolete. The practically uniform opinion was that the country is now ready for a law which will make quarantine of constantly decreasing importance as local sanitary administration shall be stimulated and perfected. And it was very clearly shown that any law that will successfully meet the situation and needs of the country must of necessity have due regard for the wishes and views of the people, must foster and encourage good will, a spirit of harmony and co operation between States, and the national authorities and local authorities for the common well being. The Caffery Bill is the antipode of this view. It is obnoxious in its spirit, and would be more so in its enforcement, to the great mass of the American people in all the States. The Spooner Bill (which is our Bill), on the other hand, is in full accord with the most enlightened modern views of health protection. It does not abolish quarantine, but in time would bring about conditions which would make quarantine almost unnecessary. It recognizes several departments of the National Government, and every State and Territory as interested and important factors in the scheme of health protection, and gives to each a voice in the framing of health regulations, and this is done by means of organization so simple as to be immediately moved to action in emergencies. It removes friction and hostilities and promotes harmony and co operation, which are essential to the success of any National health law. It violates no principle of national or local policy. Our Committee went over all this ground with the greatest deliberation, and although their views upon taking up the question had a decided leaning toward the proposition to give the Marine-Hospital Service the absolute and arbitrary power it asks for, they finally and unanimously reached the opinion that the passage of the Caffery Bill would be a serious injury to the people of the United States by delaying and hindering the broader, better and more certain solution of the problem which the Spooner Bill will afford."

The Bill was about to be acted upon in the Senate at the time of the declaration of war with Spain. Since then all matters of this kind have been laid aside, as is well known, and probably no action will be taken upon this matter during the present Congress. I am pleased to report that Senator Spooner, who has this Bill in charge in the Senate, and also Mr. Otjen of the House, are enthusiastic supporters of this measure. They are both strong men and will do everything in their power to have this Bill pass Congress at some future session, if not at this. I also have to state that the money appropriated by the Association has been all used and more besides, and that the Committee is sadly in need of funds to carry out this work. It is absolutely necessary that some one should be in Washington from time to time when this measure comes up for action or comes up for any hearing, as in the future, in all probability, these Bills will be re-referred to the Committee and future hearings be had. In order to have a Bill pass Congress it must be watched from stage to stage, and some one must be there to look after it and to furnish members of Congress who have it in charge with such evidence and other material as they may from time to time require. I herewith submit a copy of the Bill as now perfected and before Congress, and most respectfully offer the following resolutions and move their adoption:

Resolved, That the Committee on Department of Public Health be continued; that the Bill as now perfected and before Congress, and which is submitted with this report, be and hereby is approved, and that the Committee be authorized to use their best endeavors to have it passed by the Congress of the United States, at such time as in their judgment it seems proper and wise.

Resolved, That the members of this Association do all in their power, by urging upon their representative members of Congress to have this Bill passed.

Resolved, That this Association appropriate the sum of one thousand dollars, or so much thereof as may be necessary, for the use of the Committee in the endeavor to have this measure passed by Congress.

Respectfully submitted,

U. O. B. WINGATE, M.D., Chairman of Committee.

Dr. Harris of New York—I move that the report be accepted and the resolutions contained therein be referred to the Business Committee, Seconded.

Dr. Bulkley of New York—I desire to say that we have no meeting of the Business Committee tomorrow, and I would suggest that the motion be so changed as to refer these resolutions to the Business Committee with power to act.

Dr. Harris—I accept the suggestion.

Dr. J. N. McCormack of Bowling Green, Ky.—I would like to move to amend the original motion by adopting the resolutions as presented by the Committee instead of referring them to the Business Committee, because they have been well formulated by the Committee, and I think we are ready to adopt them.

I therefore move that the report be received, the resolutions as read adopted, and the Committee continued. Seconded.

Dr. I. N. Love of St. Louis, Mo.—I would move that the motion be so changed as to strike out the words which give the Business Committee power to act, and report back to the Association next year. Seconded.

Dr. John B. Hamilton of Chicago—Is that motion debatable?

The President—Yes, sir.

Dr. Hamilton—Such action will simply defer this matter for one year. This Association then will be powerless to make any recommendation to Congress in regard to legislative matters for another twelve months. This Committee has been seven years in preparing this Bill and the resolutions. They are the outcome of the growth of public sentiment in respect to this question. Why then should we refer this report with the resolutions to a committee who have really no business with the subject? The Business Committee did not consider it. The Business Committee is not capable of considering so important a matter in a short time which has required this Committee years of thought and study. The State Medicine Section, a Section organized by the Health Officers in general of the States of this Union, comprises a body of men who are capable of thoroughly considering this question and they have done so. Why then should the report be postponed for another year without action when seven years have already been devoted to it. (Applause.)

The President—I will read the final resolution in regard to this report, and then it will probably solve the trouble. (Read the resolution.)

Dr. D. W. Graham of Chicago—I rise to a point of order.

The President—Please state it.

Dr. Graham—According to the Constitution and By-Laws of this Association, all appropriations of money must be referred to the Board of Trustees.

The President—The point is well made.

The President—Dr. Love moves to strike out the words "to act."

Dr. Love—I will withdraw my motion. In discussing this matter, I desire to draw the attention of the members to the fact that this Committee has been continued from year to year at the expense of the Association. The appropriation of money is contemplated in the consideration of this matter, and it does seem to me that it should be referred to the Board of Trustees who handle the money and are financially responsible. That point should be kept in mind, and I only make the point in discussing the resolution as presented by Dr. Harris.

Dr. W. T. Bishop of Pennsylvania—As this is clearly in conflict with the regulations of the Association, I move that that part of the report referring to the appropriation of $1000 be omitted. I think the Secretary of the Business Committee is entirely off in his assumption and presumption in claiming entirely too much for that Committee. I do not think the Association, when it created this Committee, intended to turn over its whole business to a body of a dozen or two men. It was intended that this Committee should consider new resolu-

tions, and not that reports of Committees like this shall be referred to it. I raise this point against it and the motions are out of order. (Applause.)

Dr. D. W. Graham of Chicago—Mr. President, I again raise the point of order, that all appropriations of money must be referred to the Board of Trustees. I therefore move, as an amendment, that the report with the resolutions be adopted, except the provision calling for an appropriation of $1000, and that this amount or so much thereof, as may be necessary, be referred to the Board of Trustees with power to act. Seconded.

The President put the motion as amended by Dr. Graham, which was carried.

The President—We will now listen to the report of the Committee on Nominations.

The report was read by the Chairman, Dr. H. O. Walker of Detroit, as follows:

DENVER, COLO., June 8, 1898.

Mr. President and Gentlemen of the Association.

The Committee on Nominations beg leave to present the following report:

OFFICERS.

President—Dr. Joseph M. Mathews, Louisville, Ky.
First Vice-President—Dr. W. W. Keen, Philadelphia, Pa.
Second Vice-President—Dr. J. W. Graham, Denver, Colo.
Third Vice-President—Dr. H. A. West, Galveston, Texas.
Fourth Vice-President—Dr. J. E. Minney, Topeka, Kan.
Treasurer—Dr. Henry P. Newman, Chicago, Ill.
Librarian—Dr. George W. Webster, Chicago, Ill.

TRUSTEES.

Dr. Alonzo Garcelon, Lewiston, Maine.
Dr. T. J. Happel, Trenton, Tenn.
Dr. I. N. Love, St. Louis, Mo.
To fill vacancy Dr. H. L. E. Johnson, Washington, D. C.

MEMBERS OF THE JUDICIAL COUNCIL.

Dr. S. Bailey, Mt. Ayr, Iowa.
Dr. D. R. Brower, Chicago, Ill.
Dr. N. S. Davis, Chicago, Ill.
Dr. H. D. Didama, Syracuse, N. Y.
Dr. D. Mason, Spokane Falls, Wash.
Dr. F. T. Rogers, Providence, R. I.
Dr. Milo B. Ward, Kansas City, Mo.
To fill vacancy, Dr. W. S. Jones, New Jersey.

ANNUAL ORATIONS.

Medicine—Dr. J. C. Wilson, Philadelphia, Pa.
Surgery—Dr. Floyd W. McRae, Atlanta, Ga.
State Medicine—Dr. Daniel R. Brower, Chicago, Ill.

Next place of meeting, Columbus, Ohio. Time, first Tuesday in June, 1899.

Chairman of Committee of Arrangements, Dr. Starling Loving, Columbus, Ohio. Assistant Secretary, Dr. E. W. Woodruff, Columbus, Ohio.

The following communication was received from the Board of Trustees:

The Board of Trustees hereby recommend that hereafter the local Committee shall provide free of expense to the Association, first, a hall for the general sessions; second, halls for Sections; third, rooms for committees; fourth, room for post-office and force thereof; fifth, room for registration and force thereof, and the Committee shall have the proceeds of the exhibition hall, and that hereafter this arrangement shall be agreed to by the representative of the local Committee before agreeing to a place of meeting for the Association meeting.

This communication was adopted unanimously by the Committee before selecting a place of meeting.

[Signed] H. O. WALKER, *Chairman.*
E. D. FERGUSON, *Secretary.*

Dr. X. C. Scott—I move that the report be adopted. Seconded and carried.

The President—We will now listen to a report from the Business Committee.

The Secretary of the Business Committee made the following report:

REPORT OF THE BUSINESS COMMITTEE, JUNE 9, 1898.

Your Committee would report that it has had fourteen matters referred to it by the Association, which were all fully considered by sub-committees and the Committee at large, in a very full meeting lasting several hours, and upon the matters would report as follows:

1. *President's address.*—While the Committee is fully in sympathy with the recommendations of the President as to the admission of members to the Association under the conditions mentioned, under the existing laws of the Association the Committee does not feel competent to recommend its adoption. Adopted.

2. *Report on the Rush Monument Committee's Report.*—The Business Committee commends the Committee for its efficient work in a noble cause, and expresses the hope that it may soon fully accomplish the purpose for which it was appointed.

The Business Committee approves of the nomination of H. D. Holton, M.D., of Vermont, for the office of treasurer, and recommends his election. Adopted.

3. *Rush Monument Committee.*—The Business Committee desires to report that Dr. Gihon, the Chairman, has been misinformed as to the payment of traveling expenses of the Business Committees. They receive no pay and do not ask any, and we recommend that the traveling expenses of the Rush Monument Committee be not paid. We do recommend that expenses of postage and stationery and other absolutely necessary expenses be paid.

The Business Committee recommend the acceptance of Dr. Gihon's resolution, and that the Permanent Secretary be instructed to communicate with the State and Territorial Medical Societies, asking them to nominate representative members of the Rush Monument Committee. Adopted.

4. *Treasurer's report.*—The Committee would report that so far as they can learn the report is entirely satisfactory, and the Committee would congratulate the Association on the most excellent state of its finances. As the Treasurer's accounts are under the control of the Trustees and his accounts audited by them, the Committee did not attempt any investigation or examination of vouchers. Adopted.

5. *Dr. Reynolds' resolution in regard to the Association of Medical Colleges.*—The representative to the Southern Association of Medical Colleges, representing fourteen Colleges, appeared before the Committee and assented to the action. The Committee, therefore, recommends the adoption of the resolution of Dr. Reynolds. Adopted.

6. *Dr. Lautenbach's resolution in regard to school books.*—After discussion the Committee adopted the following resolution: 1. That whereas the AMERICAN MEDICAL ASSOCIATION sustains no such relationship to publishing houses or boards of education as would enable it to bring such text-books under the supervision of any Committee of the Association, and therefore it is powerless to create a Committee that could do this work as contemplated by the resolution mentioned. And, 2, That the work contemplated by the resolution would involve much time and labor and the selection of men peculiarly fitted to perform the task in a credible and satisfactory manner, whose services could not be secured without adequate compensation, for which there is no provision. Your Committee, therefore, declare the purpose of this resolution to be both without the province of the AMERICAN MEDICAL ASSOCIATION and unpractical.

Association voted to concur.

7. *Dr. Hare's resolution of amity.*—While the Business Committee is in full sympathy with and endorses the idea conveyed in the proposed resolution, it feels that it involves questions which do not properly come within the province of the Committee to decide, but belong to the Association at large. It would, therefore, refer back the resolutions to the Association, with the accompanying proof that identical resolutions were passed by a very large majority at the Baltimore meeting, but before the vote could be announced the matter was laid over for a year, as involving a change in the Constitution. Although notice was then given that it would be brought up the following year, as an amendment to the Constitution and By-laws, such notice was for some reason omitted from the printed program, and so the matter was not brought up.

Affidavit of Mr. Wm. Whitford, official stenographic reporter:

"A resolution identical with that offered by Dr. Hare this morning, June 8, was passed at the Baltimore meeting. Before the vote could be announced the matter was laid over for a year, as involving a change in the Constitution."

WHEREAS, In times past circumstances have occurred which have deprived the Association of the presence and co-operation of many members of the profession of high standing, who have contributed much to the advance of medicine and surgery; therefore, be it

Resolved, That this Association invites the New York State Medical Society, the New York County Medical Society, the New York Academy of Medicine and other societies of good and regular standing to send delegates to this Association, who will be received and accredited upon proper credentials from the officers of such societies; and,

Resolved, That all acts or ordinances contrary in spirit or letter are hereby rescinded.

The President—Can the Secretary inform us whether the minutes of the Association will show any of these facts?

The Secretary—I have not the minutes of the previous meetings of the Association with me.

Dr. H. A. Hare of Philadelphia—Mr. President, I have been asked why I offered the resolutions, and——

The President—As soon as a motion is made to receive the report, the Association will hear you, Dr. Hare.

Dr. Hare—I move, Mr. President, that the report of the Business Committee on the resolutions offered by me be received, as this has to be done before the Association votes on it. Seconded.

Dr. W. P. Munn of Denver—I rise to a point of order.

The President—Please state your point of order.

Dr. Munn—Any resolution or resolutions involving questions of ethics, according to our Constitution, must be referred to the Judicial Council. It was an error in the first place to have referred these resolutions to the Business Committee, and they should now be referred to the Judicial Council.

The motion of Dr. Hare was put and carried.

The President—The Association will do Dr. Hare the courtesy of listening to his explanation in regard to this matter,

Dr. Hare—Mr. President, I have been asked why I offered those resolutions yesterday, and with the permission of the Association I would like to explain the reasons therefor. It is unknown to many members of the Association that at the present time there exists in New York State two sets of medical bodies, two State medical societies, two county medical societies, one of the State and one of the county medical societies have a right in this Association by the rules of this body, and they possess that right at the present time by inheritance or heredity. The other county society, a much younger organization, but nevertheless a much more powerful one, both in numbers and in the large amount of scientific work which is contributed each year, has not been admitted to this Association. It is a fact that these two organizations have not adopted in their constitution and by-laws a rigid code of ethics to govern the entire body and which brings each individual member under the care of their censors. Each member in these societies is supposed to do what he believes is right, and not what he believes is wrong. This association, the Society of the County of New York, numbers about thirteen hundred members, while the New York County Association numbers about nine hundred members. It is with the object of admitting, under certain restrictions, the thirteen hundred members of the County Society to our meetings that my resolution was offered. I would not counsel for one moment that that those who consult with irregular practitioners should be admitted to this body with equal rights with ourselves. I desire that every man who comes from the New York County Society or the New York State Medical Society shall sign our code of ethics (applause), and, sir, in the resolutions you will notice that the Judicial Council is empowered to state what society shall come in, so there is no danger of this Association being snowed under by irregular societies or by irregular practitioners. It is simply my wish that the members of this prominent and scientific society, men who are prominent because of their scientific ability, who may not agree on minor points regarding the code of ethics, should have the privileges of the AMERICAN MEDICAL ASSOCIATION.

We have heard a great deal within the last few days about a united country and a united profession. Only a night or two ago the Toastmaster at the joint dinner proposed the toast, "Is There a North? Is There a South?" And our honored President, whom we have elected today, rose to his feet and in the words which all Kentuckians say so well told us there was no North and there was no South; that the different sections of this country were welded together. Is this AMERICAN MEDICAL ASSOCIATION, composed of scientific and enlightened men, going to keep up its petty quarrels because of the societies I have mentioned? There is no North, there is no South, and there is but one AMERICAN MEDICAL ASSOCIATION; there is but one medical profession in America, and there is no irregular medical profession in this country. It is for these reasons that I offered the resolutions yesterday.

I now move, Mr. President, the previous question, and I ask that the roll be called and the ayes and nays be recorded on the previous question and the original resolution, and I would remind the convention that only delegates can vote.

Dr. X. C. Scott of Cleveland, Ohio—I desire, gentlemen, to reply to the speech of Dr. Hare and set forth the facts, as well as the true history of this matter.

The President—In a spirit of fairness, in order to have this matter settled (and I understood Dr. Hare to say that he wanted the matter settled), I extended him the courtesy of the floor, and now he moves the previous question. Is this letting the matter come before the Association in the proper way? I would not have heard Dr. Hare on this question did I not expect a fair and full statement of the other side of the case, because the point of order raised by Dr. Munn was well taken. I will ask Dr. Hare whether he insists upon the previous question.

Dr. Hare—In view of what you have said, Mr. President, I desire temporarily to withdraw my motion until Dr. Scott has been heard.

Dr. E. D. Ferguson of Troy, N. Y.—A word or two on this subject, Mr. President. The point is this: Dr. Hare has succeeded in presenting one side of the case. I am from the State of New York. I am Secretary of the New York State Medical Association, and before this question is closed I would like an opportunity to say a few words after Dr. Scott has spoken.

Dr. Scott—There is a history connected with this question. The New York State Medical Society is not a young society. It was formerly a constituent of this body; it sent its delegates to this body. But in 1881 it passed a resolution to consult with whom they pleased and decided that it would have no code. In 1882, at our meeting in St. Paul, its delegates presented themselves, but were refused admission by the Judicial Council. The matter then remained quiet until 1891, when some members of the New York State Medical Society came back and were admitted to membership on proper qualifications. And finally this matter was raised in Washington in 1891. In 1892 it was decided by the Judicial Council that they could not be admitted, but, upon the representations of the members of the New York State Medical Society who were present at the Detroit meeting, a committee was appointed by this Association to confer with a committee from the New York State Medical Society to see whether this matter could not be brought about. Now, what was the result of that commission we sent out? We were simply informed that a union could be brought about only by acceding to the terms of the former, and this action was reported at Milwaukee. This Association then passed a resolution to the effect that it would never consider this question in any other light. This matter does not come from the New York State Medical Society asking for admission upon proper qualifications, but from gentlemen entirely outside of that Society. I think it is time for us to consider a request when they present it, and any other plan would result in stultifying and making ourselves the laughing-stock of all communities. (Applause.)

Dr. I. N. Love of St. Louis—I desire simply to present this thought. I have studied the question carefully from the various standpoints, and I am satisfied that this Association desires to keep Dr. Scott in the Judicial Council. I am glad he is there, because he is the watch dog of this body. If I interpret the resolutions of Dr. Hare rightly, they permit many able and scientific men of the profession in New York County to enter this Association. They were in the minority, and they could do nothing, as their hands were tied. These resolutions of Dr. Hare permit them to enter this Association on the same terms individually as we do. Dr. Scott has made the point that members of the State and county societies have presented no request, and that it has been done by outside parties. How can they, in the name of heaven, when they can not get in here? (Laughter.) I think, Mr. Chairman, if the point is made that these gentlemen can individually join the Association by signing its rules and regulations and code of ethics the same as the rest of us do as individuals, I certainly would favor the suggestion of Dr. Hare.

Dr. C. Lester Hall of Kansas City, Mo.—I would like to ask if this is a delegated body?

The President—Yes, sir.

Dr. E. D. Ferguson—I will endeavor to be brief in my remarks, for Dr. Scott has practically covered the field. He has been accurate with the exception of two or three dates which are immaterial as to the essential question under discussion. I wish to state, however, a few things familiar to many of the delegates on the floor, but unfortunately are not familiar to a majority of the delegates and to the majority of the profession throughout the country. This is a very tender and very serious question. We of the New York State Medical Association, entitled to representation here, regret as much as Dr. Hare or any member of the profession in this country that all of the members of the medical profession in the State of New York are not entitled to representation in this body. But, Mr. Chairman, it is their own fault. They deliberately—and I will not go into a detailed history at this time—cut themselves off from this Association, and they were told by such action they were cutting themselves off. They said, "we do not care; the AMERICAN MEDICAL ASSOCIATION is only

a junketing affair and we are the scientific medical association of the State of New York; we do not want anything to do with them; they will come to us bye and bye." The AMERICAN MEDICAL ASSOCIATION, Mr. Chairman, was not as large an organization then as it is today. This was fifteen years ago. But the AMERICAN MEDICAL ASSOCIATION has grown, and it is now desirable for these men to come into the Association and participate in the transactions of this body and to read papers. As the Secretary of the New York State Medical Association since its organization, I have been cognizant of the wishes of men to do this thing, and I have been repeatedly asked if there was not some way by which these men would be entitled to the privileges of this floor. They have not as a body given at any time any sign that they wished to come back into full fellowship with this Association. The AMERICAN MEDICAL ASSOCIATION, under the Presidency of Dr. Marcy, appointed a committee to meet with a committee from the New York State Medical Society and a committee from the New York State Medical Association to see if this matter could not be arranged. The New York State Medical Society said it had no occasion to appoint any committee; yet in the face of all these facts the New York State Medical Society, the elder organization not the younger, one of the pioneer bodies, in fact the pioneer body in the organization of the AMERICAN MEDICAL ASSOCIATION, for Dr. N. S. Davis was then a member of the New York State Medical Society, in spite of these facts, they have rejected, in every possible way they could do officially, efforts to reinstate themselves in the AMERICAN MEDICAL ASSOCIATION. Now, we have here resolutions inviting these bodies to send delegates. These gentlemen are said to come here pure and holy because they can subscribe to our Code of Ethics. If they can do this the door is open for them, for they can join their local organizations in New York and come here as delegates. (Applause.) No worthy man will be refused membership in the organization who is entitled to representation here. We are not here fighting for our existence and against bodies entitled to representation in this Association. We feel that every member of the AMERICAN MEDICAL ASSOCIATION should stand by us, because at the expense of a good deal of time and labor and a great deal of trouble and mental affliction, we have stood by what we believed to be the cardinal principles of the organization of the AMERICAN MEDICAL ASSOCIATION. (Applause.)

Mr. Chairman, now, they say, these men can come here and be received as delegates. Delegates from what? Delegates from a body which has spat contumely upon us and has never withdrawn it. Are we to ask and beg the New York State Medical Society to come back into the fold of the AMERICAN MEDICAL ASSOCIATION? (Cries of "No! No!") Was there anything in any part of the Code of Ethics that put them out? No. It was their own voluntary act. It is absurd that an organization like this should ask men to become fellows who have by every official act they have committed said they wanted no fellowship with us. (Applause.)

Dr. W. P. Munn of Denver—Mr. Chairman and members of the Association, Colorado desires to take a little time outside of its entertainment to say a few words upon these resolutions. The resolutions offered by Dr. Hobart A. Hare of Philadelphia are the inoculated scalpel by which it is proposed to introduce the sepsis of commercialism into the AMERICAN MEDICAL ASSOCIATION. (Cheers and cries of "Good! Good!") (Here Dr. Hare interrupted the speaker and was informed by the President that Dr. Munn had the floor.)

Dr. Munn (resuming)—I had nothing to say while Dr. Hare held the floor. Dr. Hare is a delegate to this body from Pennsylvania. It is eight years now since I left my home in that State to come to Colorado. I know from many visits among the practitioners of Pennsylvania that today I can voice the sentiments of the profession there more accurately, more faithfully, more truthfully than Dr. Hare can before you today. (Applause.) These are the resolutions of Dr. Hare and they could not carry for one moment before the State Medical Society of Pennsylvania. There are members of the State Medical Society of Pennsylvania here and if I am wrong let the majority of them correct me. In this Western country we have had all we could do to uphold the Code of Ethics of the AMERICAN MEDICAL ASSOCIATION, but we have done it. We have had all we could do to keep out the dead rot of commercialism, and are we going to be trodden down by this derelict, dead, rotten society of New York which is continually sending—(Cries of "No!" mingled with hisses, the final words of the sentence being inaudible).

Dr. Jackson of Philadelphia—I came here as a delegate from Philadelphia. I sincerely hope that this question will be decided once and for all. Let us understand what the question is. The question is, Shall the AMERICAN MEDICAL ASSOCIATION be a representative body, representative of the local organizations of the profession throughout the country, or shall it consist of individual members attracted to the meeting who represent themselves? This is the question we have to decide, and I hope it will be decided now once and for all.

Dr. Hare—I simply wish to say, Mr. President, that I had no intention of making erroneous statements, if I did make them. In withdrawing my previous question temporarily, I did so as a matter of courtesy. I tried in my remarks to use no language which would be offensive to either side of the question; but I regret, sir, that language has since been used which I think is offensive. I want to say to this Association, that I am the last man in my State to do what has been referred to by Dr. Munn. We have in New York State a large body of practitioners who want to come back to this Association. Let them come to us; let them sign the Code of Ethics, and the thing which has been referred to with strong adjectives will have the life sapped out of it.

Dr. W. T. Bishop of Harrisburg, Pa.—Mr. President: I rise to a point of order.

The President—Please state it.

Dr. Bishop—If the resolution introduced by Dr. Hare is passed it will contravene the organic law of our Association. If we desire to admit these men, we must change the organic law so that we can admit them. But do not let us admit them and override the law. The organic law of this Association provides that of the several State and several county societies, there shall be but one State and one county society in each State and in each county. Now, then, because it does contravene the law the resolution is out of order, and there is no necessity of introducing these personal reflections. There is no necessity of introducing misstatements. I make the point of order, then, that this matter is in contravention to the organic law of the Association, and the whole matter is out of order.

(The Chair sustained the point of order amid laughter and applause.)

8. *Dr. Keen's resolution for the dissemination of scientific knowledge.*—After discussion this was recommended as follows: Your Committee, to whom was referred the resolution of Dr. Keen, relative to the appointment of a co-operative committee of five who should consider the desirability of formulating plans concerning experimental research, would respectfully report that inasmuch as the province of such committee is but to consider the desirability of formulating plans for such a purpose, we would, therefore, endorse the resolution and recommend the appointment of such a committee. Adopted.

9. *Dr. Gould's resolution as to medical libraries.*—After discussion these were recommended for adoption by the Association. Adopted.

10. The invitation from the Mayor of Chicago and others to hold the next meeting of the Association in that city, was referred to the Nominating Committee.

11. *Dr. Bailey's resolution in regard to the appointment of a new general secretary.*—After a full discussion it was decided that it was infeasible to attempt to put it in operation this year, and the following report of the same was sent to the Association: "While the Committee fully agree as to the desirability of having much more active secretary work done for the Association, and believe that the plan proposed would greatly increase the scope and usefulness of the Association, it is not prepared at the moment to recommend the adoption of the resolution. It is a matter of such very great importance that further consideration of the details involved is necessary, and as it may possibly involve a change in the Constitution and By-Laws, your Committee has decided to recommend that the matter lie over for one year, and hereby gives notice that it proposes such changes, if any are necessary, in the Constitution and By-Laws at the next annual meeting of the Association."

Dr. William Bailey of Louisville—This resolution came to me as representing the majority of the Business Committee. It was the wish of the Committee that I present this resolution in the interests of the Association from the floor. I wish to state before the Association that I was not actuated by any antagonism to our worthy Secretary, Dr. Atkinson. This is all I desire to say.

Dr. I. N. Love—Inasmuch as this pertains to the expenditure of money, I move that it be referred to the Board of Trustees. Carried.

Report as amended was accepted.

12. *Dr. Stone's communication in regard to a permanent badge for membership in the Association.*—Dr. Stone appeared before the Committee exhibiting the badges and a drawing of them, and explaining the desirability of the same. After discussion the following was adopted: "The Committee report in regard to the proposal of Dr. Stone in regard to a permanent

badge or button for members of the AMERICAN MEDICAL ASSOCIATION, that in their opinion such a badge, or any badge, for permanent use, would neither add to the dignity of the individual members nor increase the efficiency of the Association and would, therefore, recommend that Dr. Stone's proposal be not accepted."

Dr. D. S. Reynolds—I move to amend the report of the Business Committee to this effect:

Resolved, That the proposed official button presented by Dr. French Stone of Indiana be and it is hereby accepted and adopted as the permanent badge of the Association. Seconded.

Dr. L. Connor—I think the Code of Ethics prohibits dealing in patent instruments.

Dr. I. N. Love—It is desirable that we should have a permanent button that we can wear the year round. This button, as I understand it, is from the best men of Indiana and Kentucky and has been carefully considered by them. It is a beautiful and attractive button, and I think would settle the question favorably and it would then be available for all of us. It would go with our credentials, and I therefore would like to see it adopted.

The President—The point of order made by Dr. Connor is not well taken.

Dr. G. C. Savage—I do not think any action this Association can take would give more dignity or would tend to increase the membership more largely than the amendment offered by Dr. Reynolds. As a member of the Association, I would feel proud to wear this button.

The amendment of Dr. Reynolds was adopted.

13. *The communication from the Ohio State Medical Association in regard to a special committee on National Legislation.*—After discussion the Committee adopted the following recommendation to the Association: "The Committee would report that it does not see its way clear to the efficient working of such a Committee on National Legislation without considerable expenditure of the funds of the Association, and does not therefore recommend the appointment of such a Committee." The Association concurred in the report.

14. *Dr. Horner's plan for a Medical Relief Association.*—The Committee would report that the same matter was referred to them last year, and that they reported as follows: "The recommendation and resolutions were referred back to Dr. Horner as impracticable at the present time, but with the approval of the Committee as to the general plan." After further extended consideration of the subject your Committee do not see their way clear to recommending the adoption of the plan. Adopted.

Dr. Gihon moved that this action be reconsidered. Carried.

Dr. Gihon then moved that the matter be laid on the table. Carried.

Dr. Sanders asked what disposition had been made of the resolutions offered by him at a previous session. He said that it was desirable that the report be made early. He would like to have the voice of the Committee expressed as early as possible.

On motion of Dr. D. S. Reynolds, the resolutions were referred to the Business Committee with power to act.

Dr. J. B. Murphy of Chicago then delivered the Oration on Surgery. He selected for his subject, "Surgery of the Lung."

On motion, Dr. Murphy was extended a vote of thanks for his able and instructive address, after which the Association adjourned until 11 A.M. Friday.

(To be concluded.)

BOOK NOTICES.

Clinical Lectures on Diseases of the Heart and Aorta. By GEORGE WILLIAM BALFOUR, M.D., LL.D., F.R.C.P., F.R.S. Third Edition, pp. 479, 8vo, cloth. Edinburgh: Adam & Charles Black, 1898; A. C. McClurg & Co., Chicago.

Mr. Balfour has been so long and favorably known in this country as an author on diseases of circulation, especially for his observation and treatment of aneurysm and cardiac diseases that he needs no introduction in America. We may say, however, that this volume, the first edition of which was issued in 1875, has been entirely revised and rewritten and considerable new matter has been incorporated and there is no question but the new edition will be as favorably received as its predecessors.

International Clinics. A Quarterly of Clinical Lectures. Edited by JUDSON DALAND, M.D., Philadelphia; J. MITCHELL BRUCE, M.D., F.R.C.P. London; DAVID W. FINLAY, M.D., F.R.C.P. Scotland, pp. 355. Philadelphia: J. B. Lippincott Company, 1898.

The records of cases can never become stale or useless even though the remarks made upon them at the time may become obsolete by the changes of time; for that reason the case records embodied in these series will always be useful and instructive and may be referred to years after the date of their publication.

For the practitioner who desires to keep pace with the existing practice of the times in all branches and be in touch with the current fads and improvements of medicine and surgery, he can accomplish his purpose in no better way than by the careful perusal of the volumes of this series.

Outlines of Practical Hygiene. By C. GILMAN CURRIER, M.D. Third Edition, revised and enlarged, 8vo, cloth, pp. 482. New York: E. B. Treat & Co., 1898.

This revised and enlarged edition incorporates the essentials of sanitary science of practical hygiene. It is largely used as a text book. This work is extremely well written and of great value to the sanitarian, civil engineer and practicing physician.

Report on Bubonic Plague. Being a report based upon observation on 939 cases of Bubonic Plague, treated at the Municipal Hospital for infectious diseases at Arthur Road, Bombay, from September 24, 1896, to February 28, 1897, by KHAN BAHADUR N. H. CHOSKY, Extra Assistant Health Officer Bombay Municipality, Bombay, printed at the "Times of India" Steam Press, 1897.

This contains the most complete report of the cases during the late Bubonic epidemic at Bombay that has appeared. Fifty four autopsies were made of the cases, 47 by the members of the Austrian Plague Commission and the remainder by the hospital staff. Nearly one-half of the bound volume is occupied by clinical charts.

We referred to this in our editorial on p. 29 of the current volume.

Illustrated Skin Diseases. An Atlas and Text with special reference to Modern Diagnosis and the most Approved Methods of Treatment, by WILLIAM S. GOTTHEIL, M.D.

This work, three portfolios of which have been issued, will be issued in quarter portfolios, each containing 24 quarto papers, a text with numerous formulæ and four plates of cases from life, by a new photographic process.

The illustrations are accurate and numerous, and the plates are extremely life-like. We shall look for the succeeding portfolios with interest, and in the meantime compliment the author and the publisher on the splendid series so far presented.

The Purification of Public Water Supplies. By JOHN W. HILL, Consulting Engineer, etc., etc., 8vo., cl., pp. 304. New York: D. Van Nostrand Co., 1898.

This work is a continuation of a series of lectures and papers on the quality of public water supplies which the author has read before several scientific societies and in universities during the past five years, and presents briefly:

1. The facts and causes of pollution of sources of public water supplies.

2. The effect of this pollution on the typhoid fever rates of our larger cities.

3. Illustrates by few examples how typhoid rates have been reduced by the introduction of water from purer natural sources and by filtration of polluted water.

Data are given on the methods of construction and operation of sand filters with the cost of filter construction. In these days when health officers and sanitarians generally are deeply impressed with the importance and necessity of vigorous attack on the water pollution and the prevention of diseases arising from bad water, this work will be found of great value. The book is thorough and complete and may be depended upon by Health Officers generally and others interested, as presenting the latest established views on the subject.

MISCELLANY.

Boasting of No Use.—We observe with a great deal of pain, almost amounting to sorrow, that our great and good friend, the *Medical Record*, one of Wm. Wood and Company's publications, is inclined to amuse itself by the publication of incomplete and incorrect reports of the last annual meeting in advance of the other medical journals, and particularly in advance of the report by the JOURNAL. The JOURNAL in printing the reports of the Transactions of the ASSOCIATION must have them officially correct, consequently it can not take them from any person but the proper officers of the ASSOCIATION. If the example of the *Record* were followed, it would be quite easy to fill the JOURNAL with pages of half edited and incorrect matter, largely taken from the lay press at the place of meeting. Reference to this subject was made necessary by the Paracelsian bombast of the *Record*, whose Spanish-like tendency to mislead its unfortunate constituents is matter for sincere regret.

THE RECENT MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

It is so well known that the *Medical Record* is always ahead of its contemporaries in printing the medical news of the day and reports of important meetings throughout the world, that it seems almost superfluous to remind our readers again of its pre-eminence in this respect. The report of the Denver meeting of the AMERICAN MEDICAL ASSOCIATION was given to our subscribers complete two weeks ago. Some other journals are still stringing it along in their columns, and it is almost pathetic to read the apology of the official journal of the Association in its issue of June 25th, for its neglect promptly to print the proceedings, even of the general sessions.—*Medical Record*, July 2.

Bacterial Pathogenesis of Biliary Lithiasis. The *Presse Méd.* of May 21 contains a study of this subject describing experimental lithiasis produced by biliary infections, and the microbes found in human calculi. They are always the bacillus coli or Eberth's bacillus, the calculi result from a catarrhal and desquamating angiocholecystitis which they set up. The conditions that favor the ascension of the bacilli into the biliary passages are mechanical or due to alterations in the secretions, or both. These factors may be inherited, imparting a predisposition to infection, possibly favored by some congenital special disposition of the biliary passages.

Liver Abscess Due to Ascaris Lumbricoides.—Another case is reported from the Greifswald clinic, making the nineteenth on record. When the abscess was evacuated a lively worm was found in the contents. The extreme tension of the abscess seems to prove that the worm could not have entered it secondarily, as the contents would have been forced out through any hole large enough to admit it. As it primarily found its way into the liver it probably carried infectious germs with it which set up the abscess.—*Deutsche Med. Woch.*, May 19.

Cancer of the Thoracic Duct.—Troisier has observed three cases in which a cancer of the uterus, stomach or suprarenal was accompanied by inflammatory proliferation and cancerous vegetation nearly the whole length of the thoracic duct. Only one other case is on record (Weigert's). A left supraclavicular adenopathy was present in each case, to which he has already called attention as valuable in the diagnosis of cancers of the abdomen. The occlusion of the thoracic duct was not accompanied by any retention of chyle in the intestinal lymphatics, showing that the lymph must be carried over some collateral route.—*Presse Méd.*, May 21.

Official Advice for the Soldiers in Cuba.—Before embarking for Cuba, Lieut.-Col. Benjamin F. Pope, Chief Surgeon of the Fifth Army Corps, General Shafter commanding, issued a memorandum of instructions to the troops, with the view of protecting them from insanitary influences during the service before them in the Island of Cuba:

The Chief Surgeon issues the following memorandum of instructions to the soldiers of this command for the preservation of their health in the tropics: The body adapts itself readily to changes of climate. You do not require any special preparation for the climate of Cuba. You should meet the heat in the same way that you do in the summer season in the North. Avoid, therefore, the use of medicines that are recommended to protect the body against the action of climate. The danger in the tropics does not come from the direct action of the climate. The danger is due to the presence in some districts of the warm country of the microbes of certain diseases. There are no medicines that will protect us from these diseases. The chief measures for their prevention will be instituted by your commanding officer. Do not take quinin regularly when your health is good. Do not take purgatives when the bowels are regular. Drink boiled water when you can not get natural spring water. Stagnant surface water is specially dangerous. If possible drink water only at meal time. The fruits of the country are wholesome when eaten in season. Avoid unripe and unsound fruits. Peel all fruits before eating. Use as little alcoholic beverages as possible. The clothing should be light and loose. When wet from rain or sweat remove it for drying, and rub the body briskly with a towel. Bathe in running streams, once a day if possible. Keep the body clean. If exposed to draughts when perspiring freely put on some extra covers. Sleep with dry clothes. The health of the Command will depend, to a great extent, upon the strict observance of orders not to communicate with suspected people or places. All sickness should be reported at once to a medical officer.

Beware of the Manchineal Tree. The following circular, prepared by Dr. J. T. Rothrock, Commissioner of Forestry, Department of Agriculture of the Commonwealth of Pennsylvania, has been published and distributed by direction of Hon. Daniel H. Hastings, Governor of the Commonwealth:

Branch and fruit of Manchineal tree.

SOLDIERS!

BEWARE OF THE MANCHINEAL TREE!!

It grows along the sea shore in Cuba, and the West India Islands generally.

It is from forty to fifty feet high, has oval, pointed, toothed, shining leaves, which are from three to four inches long.

When the fresh leaves are pulled off a drop of milky juice comes from the leaf stem.

The fruit is a yellowish green, fragrant, and somewhat resembles an apple in shape.

If bitten into it makes the mouth very sore for a time and may produce serious results.

After handling any part of the tree—root, leaves or fruit—rubbing the eyes may cause them to become seriously inflamed.

Mucous membranes (such as the red margin of the lips or eyes, or anus) are particularly subject to its poisonous effect.

It is said by many of the natives to cause poisonous effects even if the tree is not touched, but by simply being in its neighborhood.

Many persons are alleged to have been injured from being under the tree during a shower, when the drops of water fell upon them from the tree.

Some persons are more sensitive to the effect of this poison than others. In fact there are a few who are not affected by it at all, just as is the case with our poison oak or poison ivy, the chief difference being that the manchineal affects the mucous membranes, above alluded to, more than the skin proper, whereas the poison ivy affects the skin much more frequently than it does the mucous membranes.

Many persons of experience in the tropics assert that it is unwise to camp near this tree.

If poisoned by the manchineal, and beyond reach of your surgeon's help, the best thing to do is to wash the part affected freely with salt water.

It is sometimes called by the natives manzanilla (pronounced man za-ne-ya).

Local Anesthesia in Operation.—In the *Annals of Surgery* for May, Lilienthal of New York reports observations made on the effect of cocain, eucain and nitrous oxid in the performance of operations rarely done without ether or chloroform narcosis, during the last three years. He considers eucain the best local anesthetic. Compared with cocain, solutions of greater strength are required, but eucain is far less poisonous and stronger solutions may be safely employed. He generally uses from 6 to 10 per cent. solutions and in over fifty cases has not noted a single instance of toxic symptoms. He finds that injection of five grains of the hydrochlorate in one sitting is usually sufficient for an operation of considerable magnitude, e. g., herniotomy, but he has used as much as nine grains. He finds the benumbing power of eucain is quite as certain as of cocain and has never seen prostration with cardiac failure which often follows cocain in smaller doses. Eucain has a very persistent effect and on the mucous membranes does not act quite so effectively as cocain on mere contact. On this account, in operations on tissues covered by mucous membrane, he usually applies a little cocain solution first and then injects the eucain. If the operation is to be a severe one, or prolonged, he gives the patient a small dose of morphin a quarter of an hour before, for the effect on the mind. He usually promises the patient to employ general narcosis if the patient finds that he is unable to bear the pain, but in no case has it been necessary so to do. While the skin is perfectly anesthetized, the tissues beneath it are not and section of muscle causes a dull pain not hard to bear, but section of tendon is not felt. In some operations the absence of the unconsciousness accompanying general narcosis makes the work easier, as in herniotomy where the rupture is small and easily reducible. The patient under local anesthetics can bring down the hernia by coughing or voluntary straining, while in general narcosis the surgeon would be obliged to wait for vomiting or some other reflex strain. Again, in tendon suture, voluntary motion supplies at once the physiologic test as to whether the ends have been correctly adjusted. He believes that in such operations as castration, colotomy, herniotomy by the Bassini and similar methods, cholecystotomy, drainage of empyema of the thorax, etc., local anesthetics should be first choice.

European Appetite for Drink.—Henry W. Fisher in the New York *Sunday Magazine*, June 12, states that each Dane, in the average, swallows twenty-seven quarts of strong liquor yearly. But the Swedes are contented with five quarts of alcohol, twelve quarts of beer and 0.4 quarts of wine each, every year. Each German, taking them all in all and without reference to the different races, consumes 117 quarts of beer, nearly six quarts of wine and a little over thirteen quarts of alcohol, or strong liquors, every year. But the French, at least, are a "sober people." Frenchmen drink but little beer, only twenty-three quarts in the rural districts and but eleven quarts in Paris for each person per annum. But they each swallow 105 quarts of wine yearly. In the matter of strong liquors, they require twelve and three-fourths quarts each per annum, that is, they think they do and live up to that erroneous conviction. Austria-Hungary is generally rated as a wine-drinking country, but is better than its reputation in one respect at least. The Austrians and Hungarians each drink twenty two quarts of wine a year; to this they add forty four quarts of beer and the same quantity of strong liquors as the Frenchman. England's consumption of liquors allows 145 quarts of beer, 1.8 quarts of wine and 8.5 quarts of liquor to each man per annum. The Belgians are tremendous beer drinkers. One hundred and seventy quarts is the average quantity consumed in Leopold's kingdom; but even then they are only boys compared with the festive Bavarian. The Bavarians each swallow on an average 237 quarts of beer every year. In Munich each man, woman and child consumes 570 quarts of beer per annum. The Frankforters wash down their Frankfurters with 430 quarts of beer each a year. The citizens of Nuremberg come next with 322 quarts, the Berliners follow with 160 quarts, the Viennese with 145 quarts, the men, women and children of Moscow with twenty-eight quarts.

Societies.

The following recent meetings are noted:

California. — Fresno County Medical Society, Fresno, June 7.

Connecticut. Waterbury Medical Association, Waterbury, June 6.

Delaware.—State Medical Society, Wilmington, June 14.

Florida.—Duval County Medical Association, Jacksonville, June 7.

Illinois.—Rock River Valley Medical Association, Sterling, June 9; Vermilion County Medical Association, Danville, June 14.

Iowa.—Des Moines Valley Medical Association, Ottumwa, June 23; Iowa Central Medical Society, Marshalltown, June 15; Polk County Medical Society, Des Moines, June 7.

Massachusetts.—State Medical Society, Boston.

Michigan.—Calhoun County Medical Association, Marshall, June 7; Saginaw County Medical Association, Saginaw, June 10.

Minnesota. Hennepin County Medical Society, Minneapolis, June 6.

New Hampshire.—Dover Medical Society, Dover, June 1; Manchester Medical Association, June 9.

New Jersey.—New Jersey Surgical Society, Newark, June 7; Warren County Medical Society, Belvidere, June 7.

New Mexico.—New Mexico Medical Society, Las Vegas, June 4.

New York.—Erie County Medical Society, Buffalo, June 14; Hornellsville Medical and Surgical Association, June 7; Syracuse Academy of Medicine, June 14.

Pennsylvania.—Easton Medical Society, June 9; Lebanon County Medical Society, Lebanon, June 14.

Texas.—Kaufman County Medical Society, Kaufman, June 6.

Wisconsin.—Kenosha County Medical Society, Kenosha, June 3; Rock County Medical Society, Janesville, June 3.

Philadelphia.

War Revenue Tax.—It was rather strange that charitable institutions such as hospitals should be made to pay a part of the cost of war with Spain, but they are affected in the clause of the bill relating to inheritances and legacies, which provides that a tax of $5 on the $100 be applied to all legacies, exceeding the sum of $10,000. Philadelphia has always been known far and wide for its generosity toward its charitable institutions, but if the predictions of Provost Harrison of the University of Pennsylvania come true, some of that revenue may be diverted to other channels. In a recent interview he expressed himself as follows: "Hereafter we will have to pay 10 per cent. on our larger legacies, $10,000 on every $100,000 bequest we receive, for the State already taxes us 5 per cent. in addition. For example, a bequest we have recently received from Mrs. John Field, of $50,000, would have been reduced $5000 if this new law had been operative when the bequest was

received. Such a heavy tax will have the effect of driving away large bequests. It will have a very deterrent influence upon people disposed to leave in their wills large sums for charitable purposes and it is a most unwise measure." How its baneful influence will be felt can be shown by reference to legacies left to two hospitals of this city. For instance, the Pennsylvania Hospital, one of the oldest charitable institutions in the United States, since 1894 has received bequests to the amount of $110,000 and under the regulation of the new war measure over $10,000 would have to be paid back into the lap of the United States. Should it not be disappointed there will be at least $300,000 left to that institution during the current year. The hospital of the University of Pennsylvania will also have some of its revenue cut off. It is shown by proper reports that this hospital since 1893 has received bequests aggregating $172,682.67, and in two years would have been forced to pay $11,000 to the government to support this war. It does seem that at least the charitable institutions might have been left untaxed.

NORDAU OR LOMBROSO MIGHT STUDY A PENNSYLVANIA PROFESSOR.—Those physicians of Philadelphia and the people at large who are acquainted with the recent acts of Prof. George H. Stephens are astounded with the awful impulse which prompted him to destroy by fire the idol of Lafayette College, Pardee Hall. Educated for the ministry by the subscription of a church, it was thought that his course in Princeton College would render to the world and to them a man of great attainments. According to report, however, he forgot his benefactors and accepted a position at Lafayette College as Adjunct Professor of Moral Philosophy. After a residence there of about three years it is reported that his place was declared vacant, and he is quoted as saying that some insane impulse carried him onward to take revenge upon that institution, beginning first by acts of vandalism, such as damaging the chapel organ, hiding the hymn books and finally culminating in the graver crime of burning Pardee Hall.

IMPORTANT FACTOR IN A TRIAL.—Peter E. Smith, a member of the Select Council, stands charged by Walter N. Stevenson, a member of the Common Council, with offering a bribe to the latter member, to control his influence in voting against the celebrated "Loan Bill," with which readers of the JOURNAL are already familiar. Smith, however, seems to have been born under a lucky star, for although the case has been called a number of times it has as often been continued. When the day came for the trial Smith's family physician, Dr. William Stiles, gave it as his opinion that the former's physical condition would not permit him to be tried at this time, as he was suffering from gout, heart and kidney trouble. Judge Pennypacker granted a continuance.

DEATHS IN PHILADELPHIA.—For the week ending June 25 there have been reported to the Board of Health 387 deaths. Of these 152 have been in children under 5 years of age. This is a decrease of 112 over the previous week and 41 less than for the same period of last year. The causes of death were: Consumption, 34; cholera infantum, 34; inflammation of brain, 25; inflammation of stomach and bowels, 20; heart disease, 20; inflammation of lungs, 18; old age, 14; marasmus, 13; nephritis, 14; convulsions, 11. In addition, for the same period, there were 63 cases of diphtheria, 23 of scarlet fever and 91 of typhoid fever, from all of which there were 20 deaths.

HOT DAY.—June 25 was marked as one of the hot days in Philadelphia. At 5 A.M. the temperature was as low as 68 degrees, but at 8 A.M. had risen to 75 degrees, the humidity at that time being 78 degrees, making the air stifling. Later in the day the mercury gradually rose until the temperature was 94 degrees about 4 P.M. The excessive heat and humidity combined produced twelve prostrations during the twenty-four hours.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from June 25 to July 1, 1898.

Acting Asst. Surgeon Eugene H. Hartnett, U. S. A., ordered from Washington, D. C., to duty in U. S. general hospital, Ft. Monroe, Va.

Acting Asst. Surgeon Henry S. Greenleaf, U. S. A., ordered to report in person to the Major General commanding the Army for duty.

Acting Asst. Surgeon S. Melville Waterhouse, U. S. A., at general hospital, Ft. Myer, Va., ordered to accompany artillery battalion from Washington Bks., D. C., to San Francisco, Cal.

Acting Asst. Surgeon Thomas A. Smith, U. S. A., is relieved from duty on U. S. hospital ship "Relief." New York City, N. Y., and ordered to Ft. Slocum, N. Y., for duty.

First Lieut. Franklin M. Kemp, Asst. Surgeon, to San Francisco, Cal., for duty with expedition to the Philippine Islands.

Acting Asst. Surgeon J. W. Donnelly, U. S. A.; Acting Asst. Surgeon Stephen M. Long, U. S. A., and Acting Asst. Surgeon D. T. Laine, U. S. A., ordered from Washington, D. C., to Tampa, Fla.

Acting Asst. Surgeon R. Fleming Jones, U. S. A., is relieved from duty at Ft. Bliss, Texas, and ordered to Tampa, Fla.

Capt. Charles E. B. Flagg, Asst. Surgeon, is ordered from Columbus Bks., Ohio, to Ft. McPherson, Ga., for duty in the general hospital.

Major Fitzhugh Carter Surgeon U. S. A., is ordered from Nashville, Tenn., to Tampa, Fla., for duty with Fourth Army Corps.

Acting Asst. Surgeon Edwin P. Hayward, U. S. A., is ordered from Kansas City, Mo., to Leiter general hospital, Chickamauga, Ga.

Acting Asst. Surgeon C. F. de Wey, U. S. A., ordered from Louisville, Ky., to San Francisco, Cal., for duty with Philippine expedition.

CHANGE OF ADDRESS.

Angus, D. A., from 1228 to 1240 Milwaukee Av., Chicago.
Beckman, O. H., from Tyrvis, Finland, to Astoria, Ore.
Bell, J. W., from 1600 Fourth Av. to 2301 S. Bryant, Minneapolis, Minn.
Bellamy, R., from New York, N. Y., to Ocean House, Newport, R. I.
Berry B., from 3400 Morgan to 3142 Lousi St., St. Louis, Mo.
Christerson, A. L., from Lind Center to Oshkosh, Wis.
Clayton, C. F., from 4800 N. Clark to 600 W. 59th St., Chicago.
Cole, F. M., from Ida Grove to Hull, Mich.
Cutter, J. B., from Chalies, Idaho, to California Hotel, San Francisco.
Edwards, W. C., from Detroit to Cass City, Mich.
Fisher, G. C., from Ann Arbor, Mich., to 2601 Calumet Av. Chicago.
Hinsdale, G., from Philadelphia, Pa., to Bethlehem, N. H.
Howard, W. E., from Kasbeer to Ohio, Ill.
Hughes, J. D., from Sonneberg to Coburg, Germany.
Johnson, Ida, from Starbuck to Walla Walla, Wash.
Latta, M. J., from Equitable Bldg. to Good Blk., Des Moines, Iowa.
Love, L. F., from 600 S. 45th St. to 4107 Chester Av., Philadelphia, Pa.
McCassy, J. H., from 126 S. Ludlow to 5th and Wilkinson Sts., Dayton, Ohio.
Malone, L. A., from 119 N. New Jersey St. to 6 Stewart Pl., Indianapolis.
Mason, W. S., from Philadelphia to Williamstown, Pa.
Miles, W., from Chicago to Littleton, Ill.
Moore, J. W., from 1 W. 72d to 45 W. 71st St., New York, N. Y.
Nichols, C. L., from 1923 Wirt St. to Kurlack Blk., Omaha, Neb.
Noyes, A. A., from 1205 20 Avenue N to 1910 Hawthorn Av., Minneapolis.
O'Leary, A. P., from Ann Arbor, Mich., to The Dalles, Ore.
Pampel, B. L., From Wymore to Douglas Co. Hospt., Omaha, Neb.
Riesman, D., from 801 N. 6th to 326 S. 16th St., Philadelphia, Pa.
Rogers, A. S., from Ann Arbor to Vassar, Mich.
Rogers, W. W., from Jones Prairie to Carlton, Texas.
Schick, G., from Chicago to "The Southern Hotel," Chicago.
Sheffield, H. B., from 691 Prospect Av. to 331 E. 50th St., New York.
Shoemaker, S. S., from Reiffsburg, Ind., to Eureka Springs, Ark.
Taylor, P. K., from 211 W. 139th St. New York, to Kingston, R. I.
Toan, J. W., from Portland to Otsego, Mich.
Van der Veen, C., from Ann Arbor to 143 Fountain St., Grand Rapids.
Van Duyn, A. C., from 52 Cottage Grove Av. to 2960 Indiana Av., Chicago.
Wilder, H. R., from Swanton to 25 N. Union St., Burlington, Vt.
Wisman, L. J., from Ann Arbor to Frontier, Mich.
Woodward, J. H., from New York, N. Y., to Burlington, Vt.
Wyland, G. V., from Lyndon Ill., to Marcellus, Mich.

LETTERS RECEIVED.

Alma Sanitarium Co., Alma, Mich.; Allport, Frank, Chicago; Andrews, C. F., Bison, Tenn.
Bausch & Lomb Optical Co., Rochester, N. Y.; Becker, B. A., New Vienna, Iowa; Bell, F. A., Dallas, Texas; Blackburn, R. S., Breeds, Ill.; Brown, A. P., Elberfeld, Ind.; Bryan, Geo. J., Syracuse, N. Y.
Carl, I. D., Boscon, Mass.; Carter, Geo. G., New London, Mo.; Carroll, C. T., Jr., Marvin, Tenn.; Case, I. S., Dexter, Mo.; Cook, G. F., Oxford, Ohio; Corr, B. M., Cedar Springs, Mich.; Cohn, E., St. Jacob, Ill.
Doston, B. R. Blakely, Ga.
Elliott, H. G., New York, N. Y.; Evans, E. E., Sumner, Mo.
Farbenfabriken of Elberfeld Co., New York, N. Y.
Gardner, S. M., Iowa City, Iowa.
Hargrove, P. M., Kidder, Mo.; Hawkes, W. H., New York, N. Y.; Haywood, Geo. M., Rochester, N. Y.; Hektoen, L., Chicago; Henley, S., Ann Arbor, Mich.; Hooper, E. W., La Harpe, Kas.; Hudson, A. S., Boston, Mass.; Hummel Advertising Agency, A. C., New York, N. Y.
Jelks, J. T., Hot Springs, Ark.; Jonas, A. F., Omaha, Neb.
Karger, S., Berlin, Germany.; Kempson & Co., J. F., New York, N. Y.; Knight, E. Hellen, Cragmore, N. Y.
Le Fevre, Egbert, New York, N. Y.; Lehn & Fink, New York, N. Y.
Malsbury, J. O., Peru, Ind.; Mansfield, C. D., Lexington, Ky.; Marden, J. K., Ann Arbor, Mich.; Marks, A. A., New York, N. Y.; Merrick, M. B., Passaic, N. J.; Marrs, W. H., Louisville, Ky.; Mariani & Co., New York, N. Y.; Meserve, A. K. P., Portland, Me.; Mattison, J. B., Brooklyn, N. Y.; Morgan, R. G., Indianapolis, Ind.
Nelson, D. G., Chattanooga, Tenn.; Newman, A. L., Paterson, N. J.; Norwood, F. H., Carrington, Mo.
Phelps, R. M., Rochester, Minn.; Powell, E. H., Omaha, Neb.; Purdon, G., Coldwester, Kas.
Richardson, B., London, England; Robertson, Jno., Cincinnati, Ohio; Robinson, J. L., Monroe, Iowa; Rockwood, E. W., Iowa City, Iowa; Russell, L. B., Hoopeston, Ill.
Savage, G. C., Nashville, Tenn.; Scholtes, F. W., Reade's Landing, Minn.; Senn, N. (2), Washington, D. C.; Smith, F. C., Rowan, Iowa; Stauffer, W. H., St. Louis, Mo.; Stearns, F. & Co., Detroit, Mich.
Taylor, M. B., Trion, Tenn.; Troy Chemical Co., Troy, N. Y.
Walker, F. E., Bigelow, Minn.; Warren, W. M., Detroit, Mich.; Wathouse Pharmacy Co., St. Louis, Mo.; Watts, Andrew J., Seymour, Mo.; Whitacre, H. J., Cincinnati, Ohio; Woodruff, E. W., Columbus, Ohio.